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Monday
February 6, 1989

Federal Register

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- FOR:** Any person who uses the Federal Register and Code of Federal Regulations.
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- WHAT:** Free public briefings (approximately 3 hours) to present:
1. The regulatory process, with a focus on the Federal Register system and the public's role in the development of regulations.
 2. The relationship between the Federal Register and Code of Federal Regulations.
 3. The important elements of typical Federal Register documents.
 4. An introduction to the finding aids of the FR/CFR system.
- WHY:** To provide the public with access to information necessary to research Federal agency regulations which directly affect them. There will be no discussion of specific agency regulations.

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A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.

1. The first rule is that...	1. The first rule is that...
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ARTICLE I **OF THE** **CONSTITUTION**

1. The first article is that...	1. The first article is that...
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ARTICLE IV **OF THE** **CONSTITUTION**

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Rules and Regulations

Federal Register

Vol. 54, No. 23

Monday, February 6, 1989

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Part 905

[Docket No. FV-89-011]

Oranges, Grapefruit, Tangerines, and Tangelos Grown in Florida; Grapefruit Minimum Size Relaxation

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Final rule.

SUMMARY: The Department is adopting without modification as a final rule an interim final rule, which temporarily relaxed the minimum size requirements for shipments of domestic and imported pink seedless grapefruit from size 48 (3 3/8 inches in diameter) to size 56 (3 1/2 inches in diameter). The size composition, maturity level, and current and prospective supply and demand conditions for the 1988-89 season Florida grapefruit crop warrants this action.

EFFECTIVE DATE: February 6, 1989.

FOR FURTHER INFORMATION CONTACT:

Gary D. Rasmussen, Marketing Specialist, Marketing Order Administration Branch, Fruit and Vegetable Division, AMS, USDA, P.O. Box 96456, Room 2525-S, Washington, DC 20090-6456; telephone: (202) 475-3918.

SUPPLEMENTARY INFORMATION: This final rule is issued under the Marketing Agreement and Marketing Order No. 905, as amended [7 CFR Part 905], regulating the handling of oranges, grapefruit, tangerines, and tangelos grown in Florida. This order is effective under the Agricultural Marketing Agreement Act of 1937, as amended [7 U.S.C. 601-674], hereinafter referred to as the Act.

This final rule has been reviewed under Executive Order 12291 and

Departmental Regulation 1512-1 and has been determined to be a "non-major" rule under criteria contained therein.

Pursuant to requirements set forth in the Regulatory Flexibility Act (RFA), the Administrator of the Agricultural Marketing Service (AMS) has considered the economic impact of this action on small entities.

The purpose of the RFA is to fit regulatory actions to the scale of business subject to such actions in order that small businesses will not be unduly or disproportionately burdened. Marketing orders issued pursuant to the Act, and rules issues thereunder, are unique in that they are brought about through group action of essentially small entities acting on their own behalf. Thus, both statutes have small entity orientation and compatibility.

There are approximately 100 shippers of Florida oranges, grapefruit, tangerines, and tangelos subject to regulation under the Florida citrus marketing order. In addition, there are approximately 13,000 orange, grapefruit, tangerine, and tangelo producers in Florida, and approximately 26 importers who import grapefruit into the United States. Small agricultural producers have been defined by the Small Business Administration [13 CFR 121.2] as those having annual gross revenues for the last three years of less than \$500,000, and small agricultural service firms are defined as those whose gross annual receipts are less than \$3,500,000. A minority of these shippers and a majority of the producers and importers may be classified as small entities.

Grade and size requirements for Florida citrus fruit covered under this marketing order are specified in § 905.306 Florida Orange, Grapefruit, Tangerine, and Tangelo Regulation 6 [7 CFR 905.306]. Section 905.306 is effective on a continuing basis subject to modification, suspension, or termination by the Secretary.

An interim final rule amending paragraph (a) of § 905.306 was issued December 1, 1988, and published in the Federal Register [53 FR 49293, December 7, 1988]. That rule provided that interested persons could file written comments through January 6, 1989. No comments were received.

The interim final rule amended paragraph (a) of § 905.306 temporarily relaxing the minimum size requirements for domestic shipments of Florida pink

seedless grapefruit from size 48 (3 3/8 inches in diameter) to size 56 (3 1/2 inches in diameter) for the period December 5, 1988, through August 20, 1989. This relaxation is only for 1988-89 season shipments. Tighter minimum size requirements for pink seedless grapefruit will resume for 1989-90 season shipments effective August 21, 1989, as provided in § 905.306. Such tighter size requirements are based upon the maturity, size, quality, and flavor characteristics of pink seedless grapefruit early in the shipping season.

The Citrus Administrative Committee (committee), which administers the program locally, recommended relaxation of the size requirements for Florida pink seedless grapefruit at its November 8, 1988, meeting. The committee recommended that the relaxed size requirements for Florida grapefruit be made effective December 5, 1988, based on an analysis of the current and prospective marketing conditions for the 1988-89 season crop, as well as a projection of the size composition and maturity level of the crop remaining for shipment at that time. The committee reported that it expected that by December 5 size 56 grapefruit would be of a satisfactory quality, maturity, and flavor to be shipped to fresh markets. Lowering such requirements when the fruit reaches an acceptable level of quality, maturity, and flavor follows the practice of prior years. The committee also reported that it expected the grapefruit market to be the strongest and the flow to market the heaviest of the season in early December due to the strong holiday demand, and that these factors should minimize the price depressing effect of releasing smaller sized fruit on the market at that time.

The committee meets prior to and during each season to consider recommendations for modification, suspension, or termination of the regulatory requirements for Florida oranges, grapefruit, tangerines, and tangelos. Committee meetings are open to the public and interested persons may express their views at these meetings. The Department reviews committee recommendations and information submitted by the committee and other available information, and determines whether modification, suspension, or termination of the regulatory

requirements would tend to effectuate the declared policy of the Act.

Some Florida grapefruit shipments are exempt from the minimum grade and size requirements effective under the marketing order. Handlers may ship up to 15 standard packed cartons (12 bushels) of fruit per day under a minimum quantity exemption provision. Also, handlers may ship up to two standard packed cartons of fruit per day in gift packages which are individually addressed and not for resale, under the current exemption provisions. Fruit shipped for animal feed is also exempt under specific conditions. In addition, fruit shipped to commercial processors for conversion into canned or frozen products or into a beverage base are not subject to the handling requirements.

Section 8e of the Act [7 U.S.C. 608e-1] provides that whenever specified commodities, including grapefruit, are regulated under a Federal marketing order, imports of that commodity into the United States are prohibited unless they meet the same or comparable grade, size, quality, or maturity requirements as those in effect for the domestically produced commodity.

Grapefruit import requirements are specified in § 944.106 [7 CFR Part 944], effective under Section 8e of the Act. That section requires that imported grapefruit meet the same minimum grade and size requirements as those specified for the various varieties of Florida grapefruit in Table I of paragraph (a) in § 905.306. Since this rule maintains relaxed minimum size requirement for pink seedless grapefruit grown in Florida, the relaxed requirements would also be maintained for imported pink seedless grapefruit. The grapefruit import regulation permits persons to import up to 10 standard packed ⅓-bushel cartons exempt from the import requirements.

The relaxation of the minimum size requirements for domestic and import shipments of pink seedless grapefruit was designed to maximize domestic shipments and to permit shipments to meet buyer needs. The relaxation is meeting these objectives. Therefore, the Department's view is that the impact of this action upon producers, shippers, and importers will be beneficial because it will enable shippers to continue to provide grapefruit consistent with buyer requirements. The application of minimum grade and size requirements to Florida grapefruit and imported grapefruit over the past several years, has resulted in fruit of acceptable size, maturity, and flavor being shipped to fresh markets throughout the season.

Based on the above, the Administrator of AMS has determined that this action

will not have a significant economic impact on a substantial number of small entities.

After consideration of all relevant matter presented, the information and recommendations submitted by the committee, and other available information, it is found that the rule, as hereinafter set forth, will tend to effectuate the declared policy of the Act.

Pursuant to 5 U.S.C. 553, it is found that good cause exists for not postponing the effective date of this action until 30 days after publication in the *Federal Register* because: (1) This action maintains relaxed minimum size requirements currently in effect for Florida and imported grapefruit; (2) Florida grapefruit shippers are aware of this action which was recommended by the committee at a public meeting and they are prepared to continue operating in accordance with the relaxed requirements; (3) shipment of the 1988-89 season Florida grapefruit crop is currently underway; (4) grapefruit import requirements are mandatory under section 8e of the Act; (5) the interim final rule provided a 30-day comment period, and no comments were received; and (6) no useful purpose would be served by delaying the effective date until 30 days after publication.

List of Subjects in 7 CFR Part 905

Marketing agreements and orders, Florida, Grapefruit, Oranges, Tangelos, Tangerines.

For the reasons set forth in the preamble, 7 CFR Part 905 is amended as follows:

PART 905—ORANGES, GRAPEFRUIT, TANGERINES, AND TANGELOS GROWN IN FLORIDA

1. The authority citation for 7 CFR Part 905 continues to read as follows:

Authority: Secs. 1-19, 48 Stat. 31, as amended; 7 U.S.C. 601-674.

2. Accordingly, the interim final rule amending the provisions of § 905.306, which was published in the *Federal Register* [53 FR 49294, December 7, 1988], is adopted as a final rule without change.

[Note.—This section will appear in the Code of Federal Regulations.]

Dated: February 1, 1989.

Robert C. Keeney,

Deputy Director, Fruit and Vegetable Division.

[FR Doc. 89-2707 Filed 2-3-89; 8:45 am]

BILLING CODE 3410-02-M

7 CFR Part 919

[Docket No. FY-89-002]

Peaches Grown in Mesa County, CO; Final Rule Redefining Producer Representation Districts

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Final rule.

SUMMARY: This final rule redefines the districts into which the production area (Mesa County, Colorado) under the marketing order for Colorado peaches is divided. This action is intended to balance peach production between the five districts in order to provide equitable producer representation on the Administrative Committee.

EFFECTIVE DATE: February 6, 1989.

FOR FURTHER INFORMATION CONTACT: Patrick Packnett, Marketing Order Administration Branch, Fruit and Vegetable Division, AMS, USDA, P.O. Box 96456, Room 2525-S, Washington, DC 20090-6456; telephone 202-475-3862.

SUPPLEMENTARY INFORMATION: This final rule is issued under Marketing Agreement No. 88 and Marketing Order No. 919 (7 CFR Part 919), regulating the handling of peaches grown in Mesa County, Colorado. The agreement and order are effective under the Agricultural Marketing Agreement Act of 1937, as amended (7 U.S.C. 601-674), hereinafter referred to as the Act.

This final rule has been reviewed under Executive Order 12291 and Departmental Regulation 1512-1 and has been determined to be a "non-major" rule under criteria contained therein.

Pursuant to requirements set forth in the Regulatory Flexibility Act (RFA), the Administrator of the Agricultural Marketing Service (AMS) has considered the economic impact of this final rule on small entities.

The purpose of the RFA is to fit regulatory actions to the scale of business subject to such actions in order that small businesses will not be unduly or disproportionately burdened. Marketing orders issued pursuant to the act, and rules issued thereunder, are unique in that they are brought about through group action of essentially small entities acting on their own behalf. Thus, both statutes have small entity orientation and compatibility.

There are approximately 52 handlers of peaches regulated under this marketing order, and approximately 245 producers in the regulated area. Small agricultural producers have been defined by the Small Business Administration (13 CFR 121.2) as those

having annual gross revenues for the last three years of less than \$500,000, and small agricultural service firms are defined as those whose gross annual receipts are less than \$3,500,000. The majority of the peach handlers and producers in Mesa County, Colorado, may be classified as small entities.

Notice of this action was published in the *Federal Register* on December 14, 1988 (53 FR 50229). The comment period ended December 29, 1988. No comments were received.

The production area is divided into five districts for the purpose of producer representation on the Administrative Committee (committee). The committee consists of nine members. Five members, one for each district, represent producers. Three members represent cooperative handlers. There is also an independent handler member.

Paragraph (1) of § 919.32 of the order authorizes the committee, with the approval of the Secretary, to redefine the districts into which the production area is divided and to reapportion the representation of any district on the committee. Any such changes should reflect, insofar as practicable, shifts in peach production within the districts and the production area. Changes in the district boundaries were made in 1976 (41 FR 43709), and the districts are currently specified in § 919.111 of the rules and regulations issued under the order.

The committee unanimously recommended that the district boundaries once again be changed to correct imbalances in the distribution of production between the five districts. According to the committee, the boundary changes are needed to reflect shifts in peach production within the production area. These shifts are a result of the replacement of large areas that were once productive peach orchards with ranches and housing developments and of increased production in other areas. The boundary changes also reflect expected production shifts as nonbearing acreage begins production within the next two years. It is desirable to have the districts as equal as possible in production potential because each district is represented by one producer member on the committee.

To accomplish a balance in production between districts, District No. 1 will be increased by adding an area known as Rapid Creek that will be deleted from District No. 2. District No. 4 will be expanded by the addition of approximately 250 acres of production to be removed from District No. 3. In addition, the boundaries of District No. 5 will be clarified to show that the area

known as Redlands has been, and will continue to be, a part of District No. 5.

The changes in the district boundaries will evenly distribute production between the five districts with approximately 20 percent of the total production of 175,000 bushels of peaches in each area. This is intended to provide equitable producer representation on the committee and will not impose any additional cost on producers or handlers. Based on the above, the Administrator of AMS has determined that this action will not have a significant economic impact on a substantial number of small entities.

After consideration of the information and recommendation submitted by the committee, it is found that this action will tend to effectuate the declared policy of the Act.

It is further found that good cause exists for not postponing the effective date of this action until 30 days after publication in the *Federal Register* (5 U.S.C. 553). It is important that the changes hereinafter set forth be in effect upon publication so that the members and alternates may be nominated and selected as soon as possible for the term of office which began January 1, 1989. Committee members and alternates then would be able to serve as much of that two year term as possible. The proposed changes were recommended by the committee at a public meeting. Further, the proposed rule provided for a thirty-day comment period and no comments were received.

Lists of Subjects in 7 CFR Part 919

Marketing agreements and orders, Peaches, Colorado.

For the reasons set forth in the preamble, 7 CFR Part 919 is amended as follows:

Note.—The following change will be published in the Code of Federal Regulations.

PART 919—PEACHES GROWN IN MESA COUNTY, COLORADO

1. The authority citation for 7 CFR Part 919 continues to read as follows:

Authority: Secs. 1–19, 48 Stat. 31, as amended; 7 U.S.C. 601–674.

2. Section 919.111 is revised to read as follows:

§ 919.111 Redefinition of districts.

The districts into which the production area is divided are redefined as follows:

(a) "District No. 1" shall include all that portion of Mesa County known as the Rapid Creek Area and that portion lying north of the Colorado River and east of 37.3 Road and an extension

thereof to the Mesa County line. The Southern boundary is known as Sites Wash.

(b) "District No. 2" shall include all the portion of Mesa County lying south of the Colorado River, known as Vineland, on the floor of the valley and bounded by Sites Wash on the north.

(c) "District No. 3" shall include all that portion of Mesa County lying south of the Colorado River on the west of the District No. 2, known as East Orchard Mesa, to the line designated as 35 Road.

(d) "District No. 4" shall include all that portion of Mesa County lying south of the Colorado River bounded on the west by the Gunnison River including that portion known as Whitewater and bounded on the east by 35 Road.

(e) "District No. 5" shall include all that portion of Mesa County west of 37.3 Road and an extension thereof to the Mesa County line, north of the Colorado River to the junction of the Colorado and the Gunnison Rivers, and all of the rest of Mesa County south of the Colorado River and west of the Gunnison River to include the area known as the Redlands.

Dated: February 1, 1989.

Robert C. Keeney,
Deputy Director, Fruit and Vegetable
Division.

[FR Doc. 89-2708 Filed 2-3-89; 8:45 am]

BILLING CODE 3410-02-M

7 CFR Part 932

Expenses and Assessment Rate for Marketing Order Covering Olives Grown in California

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Final rule.

SUMMARY: This final rule authorizes expenditures and establishes an assessment rate under Marketing Order 932 for the 1989 fiscal year (January through December) established for that order. This action is needed for the California Olive Committee established under the order to incur operating expenses during the 1989 fiscal year and to collect funds during that year to pay those expenses. This will facilitate program operations. Funds to administer this program are derived from assessments on handlers.

EFFECTIVE DATE: January 1, 1989, through December 31, 1989 (§ 932.223).

FOR FURTHER INFORMATION CONTACT: Patrick Packnett, Marketing Order Administration Branch, Fruit and Vegetable Division, AMS, USDA, P.O.

Box 96456, Room 2530-S, Washington, DC 20090-6456, telephone 202-475-3862.

SUPPLEMENTARY INFORMATION: This rule is issued under Marketing Order No. 932 (7 CFR 932) regulating the handling of olives grown in California. The order is effective under the Agricultural Marketing Agreement Act of 1937, as amended (7 U.S.C. 601-674), hereinafter referred to as the Act.

This final rule has been reviewed under Executive Order 12291 and Departmental Regulation 1512-1 and has been determined to be a "non-major" rule under criteria contained therein.

Pursuant to requirements set forth in the Regulatory Flexibility Act (RFA), the Administrator of the Agricultural Marketing Service (AMS) has considered the economic impact of this final rule on small entities.

The purpose of the RFA is to fit regulatory actions to the scale of business subject to such actions in order that small businesses will not be unduly or disproportionately burdened. Marketing orders issued pursuant to the Act, and rules issued thereunder, are unique in that they are brought about through group action of essentially small entities acting on their own behalf. Thus, both statutes have small entity orientation and compatibility.

There are approximately seven handlers of California olives regulated under this marketing order each season, and approximately 1,390 olive producers in California. Small agricultural producers have been defined by the Small Business Administration (13 CFR 121.2) as those having annual gross revenues for the last three years of less than \$500,000, and small agricultural service firms are defined as those whose gross annual receipts are less than \$3,500,000. Most, but not all, of the olive producers and none of the olive handlers may be classified as small entities.

Each marketing order administered by the Department of Agriculture requires that the assessment rate for a particular fiscal year shall apply to all assessable commodities handled from the beginning of such year. An annual budget of expenses is prepared by each administrative committee and submitted to the Department for approval. The members of administrative committees are handlers and producers of the regulated commodities. They are familiar with the committee's needs and with the costs for goods, services and personnel in their local areas and are thus in a position to formulate

appropriate budgets. The budgets are formulated and discussed in public meetings. Thus, all directly affected persons have an opportunity to participate and provide input.

The assessment rate recommended by each committee is derived by dividing anticipated expenses by expected shipments of the commodity (e.g., pounds, tons, boxes, cartons, etc.). Because that rate is applied to actual shipments, it must be established at a rate which will produce sufficient income to pay the committee's expected expenses. Recommended budgets and rates of assessment are usually acted upon by the committees shortly before a season starts, and expenses are incurred on a continuous basis. Therefore, budget and assessment rate approvals must be expedited so that the committees will have funds to pay their expenses.

The California Olive Committee unanimously recommended 1989 fiscal year expenditures of \$1,883,290 and an assessment rate of \$25.39 per ton of assessable olives received by handlers. In comparison, 1988 fiscal year budgeted expenditures were \$1,627,482 and the assessment rate was \$23.92. Major expenditure items budgeted for the 1989 fiscal year compared with those budgeted in 1988 (in parentheses) are \$469,540 (\$435,434) for program administration, \$60,000 (\$51,948) for production research, \$760,000 (\$540,000) for consumer advertising, \$398,500 (\$494,000) for food service advertising, and \$195,250 (\$106,100) for public relations. The \$255,808 increase in budgeted expenditures from 1988 is mainly for advertising and promotion activities needed to market this year's larger crop.

An estimated assessment income of \$1,883,938 based on handler receipts of 74,200 tons of assessable olives will be utilized to cover 1989 fiscal period expenses. Last year's assessable olives totalled 57,300 tons. The proposed rule indicated that \$245,473 in excess 1988 assessments would be placed in the committee's reserve. Closer review of the committee's financial statements reveals that the \$245,473 are reserve funds derived from excess assessments from fiscal years prior to 1988, not excess 1988 assessments. Therefore, the provision authorizing unexpended funds from the 1988 fiscal year to be carried over as a reserve has been removed.

A proposed rule inviting comments on this action was published in the *Federal Register* on December 30, 1988 (53 FR 53000). The comment period ended January 9, 1989. No comments were received.

While this action will impose some additional costs on handlers, the costs are in the form of uniform assessments on all handlers. Some of the additional costs may be passed onto producers. However, these costs will be significantly offset by the benefits derived from the operation of the marketing order. Therefore, the Administrator of AMS has determined that this action will not have a significant economic impact on a substantial number of small entities.

Based on the foregoing, it is found and determined that the budget of expenses and assessment rate are reasonable and will tend to effectuate the declared policy of the Act. The budget of expenses and assessment rate should be expedited because the committee needs to have sufficient funds to pay its expenses which are incurred on a continuous basis. Therefore, the Secretary also finds that good cause exists for not postponing the effective date of this action until 30 days after the date of publication in the *Federal Register* (5 U.S.C. 553).

List of Subjects in 7 CFR Part 932

Marketing agreements and orders, olives, California.

For the reasons set forth in the preamble, a new § 932.223 is added as follows:

Note.—This section will not appear in the Code of Federal Regulations:

1. The authority citation for 7 CFR Part 932 continues to read as follows:

Authority: Secs. 1-19, 48 Stat. 31, as amended; 7 U.S.C. 601-674.

2. New § 932.223, is added to read as follows:

PART 932—OLIVES GROWN IN CALIFORNIA

§ 932.223 Expenses and assessment rate.

Expenses of \$1,883,290 by the California Olive Committee are authorized, and an assessment rate of \$25.39 per ton of assessable olives is established, for the fiscal year ending December 31, 1989.

Dated: February 1, 1989.

Robert C. Keeney,
Deputy Director, Fruit and Vegetable
Division.

[FR Doc. 89-2709 Filed 2-3-89; 8:45 am]

BILLING CODE 3410-02-M

7 CFR Parts 1124 and 1125

[Docket Nos. AO-368-A16 and AO-226-A32; DA-88-108]

Milk in the Oregon-Washington and Puget Sound-Inland Marketing Areas; Order Amending and Merging Orders; Correction**AGENCY:** Agricultural Marketing Service, USDA.**ACTION:** Final rule; correction.

SUMMARY: The final order amending and merging the Oregon-Washington and Puget Sound-Inland Federal milk marketing orders, published in the Federal Register on December 30, 1988 (53 FR 52975) contained several errors in the order language (7 CFR Part 1124) for the merged Pacific Northwest marketing area. Corrections to those errors are shown below.

FOR FURTHER INFORMATION CONTACT: Constance M. Brenner, Marketing Specialist, USDA/AMS/Dairy Division, Order Formulation Branch, Room 2968, South Building, P.O. Box 96456, Washington, DC 20090-6456, (202) 447-7183.

SUPPLEMENTARY INFORMATION: The following corrections should be made to the final rule amending and merging the Oregon-Washington and Puget Sound-Inland milk orders that was issued on December 23, 1988, and published in the Federal Register on December 30, 1988 (53 FR 52975).

PARTS 124 AND 125—[AMENDED]**§ 1124.40 [Amended]**

1. On page 52982, in the second column in § 1124.40(c)(8), in the 2nd line, the citation "§ 1125.41(a)" should read "§ 1124.41(a)".

§ 1124.44 [Amended]

2. On page 52985, in the first column, in § 1124.44(a)(9)(ii), in the 8th line, the citation "(a)(9)(ii) (a) through (c)" should read "(a)(9)(ii) (A) through (C)".

§ 1124.50 [Amended]

3. On page 52986, in the third column, in § 1124.50(c)(3), in the 2nd line, the word "paragraph" should read "paragraphs".

List of Subjects in 7 CFR Parts 1124 and 1125

Milk marketing orders, Milk, Dairy products.

The authority citation for 7 CFR Parts 1124 and 1125 continues to read as follows:

Authority: Secs. 1-19, 48 Stat. 31, as amended; 7 U.S.C. 801-874.

Signed at Washington, DC, on: February 1, 1989.

J. Patrick Boyle,
Administrator.

[FR Doc. 89-2710 Filed 2-3-89; 8:45 am]

BILLING CODE 3410-02-M

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 97**

[Docket No. 25783; Amdt. No. 1392]

Standard Instrument Approach Procedures; Miscellaneous Amendments

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment establishes, amends, suspends, or revokes Standard Instrument Approach Procedures (SIAPs) for operations at certain airports. These regulatory actions are needed because of the adoption of new or revised criteria, or because of changes occurring in the National Airspace System, such as the commissioning of new navigational facilities, addition of new obstacles, or changes in air traffic requirements. These changes are designed to provide safe and efficient use of the navigable airspace and to promote safe flight operations under instrument flight rules at the affected airports.

EFFECTIVE DATES: An effective date for each SIAP is specified in the amendatory provisions.

Incorporation by reference—approved by the Director of the Federal Register on December 31, 1980, and reapproved as of January 1, 1982.

ADDRESSES: Availability of matters incorporated by reference in the amendment is as follows:

For Examination

1. FAA Rules Docket, FAA Headquarters Building, 800 Independence Avenue, SW., Washington, DC 20591;

2. The FAA Regional Office of the region in which the affected airport is located; or

3. The Flight Inspection Field Office which originated the SIAP.

For Purchase

Individual SIAP copies may be obtained from:

1. FAA Public Inquiry Center (APA-200), FAA Headquarters Building, 800

Independence Avenue, SW., Washington, DC 20591; or

2. The FAA Regional Office of the region in which the affected airport is located.

By Subscription

Copies of all SIAPs, mailed once every 2 weeks, are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

FOR FURTHER INFORMATION CONTACT:

Paul J. Best, Flight Procedures Standards Branch (AFS-420), Air Transportation Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267-8277.

SUPPLEMENTARY INFORMATION: This amendment to Part 97 of the Federal Aviation Regulations (14 CFR Part 97) prescribes new, amended, suspended, or revoked Standard Instrument Approach Procedures (SIAPs). The complete regulatory description of each SIAP is contained in official FAA form documents which are incorporated by reference in this amendment under 5 U.S.C. 552(a), 1 CFR Part 51, and 97.20 of the Federal Aviation Regulations (FARs). The applicable FAA Forms are identified as FAA Forms 8260-3, 8260-4, and 8260-5. Materials incorporated by reference are available for examination or purchase as stated above.

The large number of SIAPs, their complex nature, and the need for a special format make their verbatim publication in the Federal Register expensive and impractical. Further, airmen do not use the regulatory text of the SIAPs, but refer to their graphic depiction on charts printed by publishers of aeronautical materials. Thus, the advantages of incorporation by reference are realized and publication of the complete description of each SIAP contained in FAA form document is unnecessary. The provisions of this amendment state the affected CFR (and FAR) sections, with the types and effective dates of the SIAPs. This amendment also identifies the airport, its location, the procedure identification and the amendment number.

This amendment to Part 97 is effective on the date of publication and contains separate SIAPs which have compliance dates stated as effective dates based on related changes in the National Airspace System or the application of new or revised criteria. Some SIAP amendments may have been previously issued by the FAA in a National Flight

Data Center (FDC) Notice of Airmen (NOTAM) as an emergency action of immediate flight safety relating directly to published aeronautical charts. The circumstances which created the need for some SIAP amendments may require making them effective in less than 30 days. For the remaining SIAPs, an effective date at least 30 days after publication is provided.

Further, the SIAPs contained in this amendment are based on the criteria contained in the U.S. Standard for Terminal Instrument Approach Procedures (TERPs). In developing these SIAPs, the TERPs criteria were applied to the conditions existing or anticipated at the affected airports. Because of the close and immediate relationship between these SIAPs and safety in air commerce, I find that notice and public procedure before adopting these SIAPs is unnecessary, impracticable, and contrary to the public interest and, where applicable, that good cause exists for making some SIAPs effective in less than 30 days.

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore—(1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. For the same reason, the FAA certifies that this amendment will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 97

Approaches, Standard Instrument, Incorporation by reference.

Issued in Washington, DC on January 20, 1989.

Robert L. Goodrich,

Acting Director, Flight Standards Service.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me, Part 97 of the Federal Aviation Regulations (14 CFR Part 97) is amended by establishing, amending, suspending, or revoking Standard Instrument Approach Procedures, effective at 0901 G.M.T. on the dates specified, as follows:

PART 97—[AMENDED]

1. The authority citation for Part 97 continues to read as follows:

Authority: 49 U.S.C. 1348, 1354(a), 1421, and 1510; 49 U.S.C. 106(g) (revised, Pub. L. 97-449, January 12, 1983; and 14 CFR 11.49(b)(2)).

By amending: § 97.23 VOR, VOR/DME, VOR or TACAN, and VOR/DME or TACAN; § 97.25 LOC, LOC/DME, LDA, LDA/DME, SDF, SDF/DME; § 97.27 NDB, NDB/DME; § 97.29 ILS, ILS/DME, ISMLS, MLS, MLS/DME, MLS/RNAV; § 97.31 RADAR SIAPs; § 97.33 RNAV SIAPs; and § 97.35 Copter SIAPs, identified as follows:

... Effective April 6, 1989

McPherson, KS—McPherson, NDB-A, Amdt. 4
Junction City, KS—Junction City, Muni, NDB-B, Amdt. 1
Clay Center, KS—Clay Center Muni, NDB RWY 35, Amdt. 1

... Effective March 9, 1989

Sandersville, GA—Kaolin Field, VOR/DME-A, Amdt. 3
Sandersville, GA—Kaolin Field, NDB RWY 12, Amdt. 2
Goshen, IN—Goshen Muni, LOC BC RWY 9, Amdt. 1
New Orleans, LA—New Orleans Intl/Moisant Fld, ILS RWY 28, Amdt. 1
Anoka, MN—Gateway North Industrial, VOR RWY 34, Amdt. 3, CANCELLED
Ramsey, MN—Gateway North Industrial, VOR RWY 34, Orig.
Mansfield, OH—Mansfield Lahm Muni, LOC BC RWY 14, Amdt. 6, CANCELLED
Salisbury, NC—Rowan County, NDB-B, Amdt. 9
Prospectville, PA—Turner Field, VOR RWY 14, Amdt. 4, CANCELLED
Quarryville, PA—Tanglewood, VOR/DME-A, Amdt. 1, CANCELLED
Appleton, WI—Outagamie County, VOR/DME RWY 3, Amdt. 5
Appleton, WI—Outagamie County, LOC BC RWY 21, Amdt. 6
Appleton, WI—Outagamie County, NDB RWY 3, Amdt. 12
Appleton, WI—Outagamie County, NDB RWY 29, Amdt. 6
Appleton, WI—Outagamie County, RNAV RWY 29, Amdt. 6
Black River Falls, WI—Black River Falls Area, NDB RWY 8, Amdt. 4
Sheboygan, WI—Sheboygan County Memorial, NDB RWY 21, Amdt. 6, CANCELLED
Sheboygan, WI—Sheboygan County Memorial, NDB RWY 21, Orig.
Sheboygan, WI—Sheboygan County Memorial, ILS RWY 21, Orig.
Siren, WI—Burnett County, VOR RWY 4, Amdt. 1
West Bend, WI—West Bend Muni, VOR RWY 31, Amdt. 8, CANCELLED
West Bend, WI—West Bend Muni, LOC RWY 31, Orig.
West Bend, WI—West Bend Muni, NDB RWY 31, Amdt. 10

... Effective January 17, 1989

Iowa Falls, IA—Iowa Falls Muni, NDB RWY 31, Amdt. 3
Big Piney, WY—Big Piney-Marbleton, VOR RWY 31, Amdt. 3

... Effective January 12, 1989

Kansas City, MO—Kansas City Downtown, ILS RWY 3, Amdt. 1
Newark, NJ—Newark Intl, ILS RWY 4R, Amdt. 7

... Effective January 10, 1989

Elizabeth City, NC—Elizabeth City CG Air Station/Muni, VOR/DME RWY 1, Amdt. 10

[FR Doc. 89-2627 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-13-M

Research and Special Programs Administration

14 CFR Part 241

[Docket No. 45529; Amendment No. 241-58]

RIN 2137-AA99

Aviation Economic Regulations; Updating the Accounting Provisions for Changes in GAAP

AGENCY: Research and Special Programs Administration, DOT.

ACTION: Final rule.

SUMMARY: This final rule relieves large certificated air carriers from the burden of maintaining an accounting system that differentiates between two sets of accounting principles—generally accepted and regulatory. This action aligns the air carrier accounting provisions in accordance with generally accepted accounting principles and in a manner consistent with facilitating the Department's administration of its aviation responsibilities.

EFFECTIVE DATE: March 8, 1989.

FOR FURTHER INFORMATION CONTACT: M. Clay Moritz, Jr. or Jack M. Calloway, Office of Aviation Information Management, DAI-1, Research and Special Programs Administration, Department of Transportation, 400 Seventh Street SW., Washington, DC 20590, (202) 366-4385 and 366-4383, respectively.

SUPPLEMENTARY INFORMATION:

Background

In a notice of proposed rulemaking (NPRM) issued March 16, 1988, the Department proposed to adopt a policy of relying, to the maximum extent practicable, on generally accepted accounting principles (GAAP), as promulgated by the Financial Accounting Standards Board (FASB), the recognized body of accounting principles, for recording large certificated air carrier financial information (Notice 88-5; 53 FR 9653, March 24, 1988). As noted in the proposed rule, the FASB is recognized

as the primary body that is responsible for developing and overseeing accounting principles and disclosure standards for American business.

Essentially, the Department proposed to modify the Part 241 uniform accounting provisions for large certificated air carriers by:

1. Clarifying certain definitions contained in glossary Section 03 and eliminating those definitions that are either already defined by GAAP or no longer needed in the current transportation environment;

2. Eliminating the repetition of GAAP in the Department's general accounting provisions that are contained in Sections 1 "Introduction to System of Accounts and Reports," 2 "General Accounting Policies," and 5 "Balance Sheet Account Groupings"; and

3. Eliminating certain balance sheet and profit and loss accounts that are no longer required for either GAAP or regulatory accounting requirements.

While the NPRM proposed that air carriers be allowed to adopt changes in GAAP at the same time for both financial and regulatory accounting purposes, it also contained a mechanism for resolving conflicts when the Department's regulatory needs for financial data cannot be met through the adoption of a particular GAAP pronouncement. In such situations, the NPRM provided that the Department's Office of Aviation Information Management would issue an Accounting Directive explaining in detail why a particular GAAP pronouncement could not be adopted for regulatory accounting purposes. It was further proposed that the Department's needs would be addressed in a notice of proposed rulemaking if significant objections were raised.

Public Comments

The Department has decided to finalize its revisions to the uniform large certificated air carrier accounting provisions as proposed. Trans World Airlines, Inc. (TWA) filed the only comment to the rulemaking notice. TWA agreed with and fully supported the proposed changes.

Statement of Cash Flows

In a related matter that furthers the objectives of this rulemaking, the Department wishes to address at this time the impact of Financial Accounting Standard (FAS) No. 95 "Statement of Cash Flows." This statement modifies generally accepted accounting principles by requiring all business enterprises to include a "statement of cash flows" as part of a full set of financial statements. Under FAS No. 95, the cash flow

statement replaces the statement of changes in financial position.

FAS-95 represents a significant philosophical change in the concept of reporting point-in-time financial position. Cash flow statements focus on cash receipts and payments and explain changes in cash and cash equivalents. Funds flow statements, on the other hand, are prepared on a broader concept of the enterprise's economic activity so as to encompass all the changes in financial position. For example, a funds flow statement would include depreciation expense, amortization expense and increases in deferred income taxes as sources of funds in calculating changes in financial position. None of these three items are included in preparing a cash flow statement since they do not affect a firm's cash position.

The financial schedules that comprise RSPA Form 41 "Report of Financial and Operating Statistics for Large Certificated Air Carriers" for carriers with total annual operating revenues of \$10 million or more include Schedules B-1 "Balance Sheet," B-12 "Statement of Changes in Financial Position," and P-1.2 "Statement of Operations." While the inclusion of these three schedules in Form 41 is based on the value of the information to the Department in administering its aviation responsibilities, it also reflects the significance that has been historically placed on these types of reports by the accounting profession and the financial community. Because of this similarity of financial data requirements, carriers have been able to fulfill their financial and regulatory reporting responsibilities by developing a management information system that collects financial data in a manner that facilitates the generation of a balance sheet, statement of operations and statement of changes in financial position.

The private sector's adoption of FAS No. 95 and the Department's Schedule B-12 reporting requirement have combined to create a problem for carrier management information systems by requiring the reporting of point-in-time financial position based on two different perspectives: funds flow versus cash flow. This has created a practical data gathering problem for air carriers since funds flow and cash flow statements require the extraction and maintenance of a different subset of financial information from the carrier's data base in order to generate the respective reports.

While the Department believes that a cash flow statement would be useful in administering its aviation programs, it also feels that changing Schedule B-12

from a funds flow to a cash flow format involves a change in reporting that is significant enough to warrant addressing the issue through the rulemaking process. At the same time, the Department is very concerned about the additional reporting burden that carriers must bear until the rulemaking process can be completed.

Because of this concern, the Department has considered various ways of reducing or eliminating this burden, and has decided to accept waiver requests from affected air carriers to enable them, upon a proper showing of need and a finding by the Department, to file a cash flow statement in lieu of the current Schedule B-12. Each waiver request must be accompanied by a pro forma example of the format the carrier proposes to use in lieu of Schedule B-12. Waiver requests must be addressed to the Director, Office of Aviation Information Management, DAI-1, RSPA, Department of Transportation, Washington, DC 20590.

Adoption of GAAP

By virtue of this final rule, the Department adopts a policy of relying on GAAP, as promulgated by the FASB, as the recognized body of accounting principles for recording air carrier financial information. In adopting this policy, the Department recognizes the possibility that a situation may arise where a change in GAAP could adversely affect the Department's ability to administer its aviation responsibilities. In this circumstance, the Department's Office of Aviation Information Management will issue an Accounting Directive fully explaining why the application of the accounting principle in question would negatively impact administration of the Department's aviation programs. The directive also will provide the necessary accounting guidance required to maintain the accounting integrity of the Department's Uniform System of Accounts and Reports for Large Certificated Air Carriers.

If significant objections are raised by any concerned party or parties to the Department's decision not to implement a particular accounting principle, such objections would be addressed in a notice of proposed rulemaking. Air carriers and any other concerned parties will be encouraged to submit their views and comments on the issues raised. After due deliberation of all comments received, the Department will issue a final rule, stating its conclusions.

It should be noted that the Department's decision to rely on GAAP-

based accounting has caused it to retain, rather than eliminate as proposed, account 2860, Subscribed and Unissued Stock. This will allow affected air carriers to account for and disclose the results of stock subscription transactions in accordance with generally accepted accounting principles. Because of this, section 3, Chart of Balance Sheet Accounts, will be editorially revised to include account 2860, which had previously been inadvertently omitted.

Department Regulatory Policies and Procedures

Executive Orders 12291, 12612 and 12630; Department's Regulatory Policies and Procedures; Regulatory Flexibility Act; and Paperwork Reduction Act of 1980.

This action has been reviewed under Executive Order 12291, and it has been determined that this is not a major rule. It will not result in an annual effect on the economy of \$100 million or more. There will be no increase in production costs or prices for consumers, individual industries, Federal, State or local governments, agencies or geographic regions. Furthermore, this rule will not adversely affect competition, employment, investment, productivity, innovation, or the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets. These regulations will result in a reduction in reporting burden for large certificated air carriers. Accordingly, a regulatory impact analysis is not required.

This action has been analyzed in accordance with the principles and criteria contained in Executive Orders 12612 and 12630 and it has been determined that the final rule: (1) does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment and (2) does not pose the risk of a taking of constitutionally protected private property.

This regulation is significant under the Department's Regulatory Policies and Procedures, dated February 26, 1979, because it involves important Departmental policies. Its economic impact should be minimal and a full regulatory evaluation is not required.

I certify that this rule will not have a significant economic impact on a substantial number of small entities. For purposes of its aviation economic regulations, Departmental policy categorizes certificated air carriers operating small aircraft (60 seats or less or 18,000 pounds maximum payload or less) in strictly domestic service as small entities for purposes of the

Regulatory Flexibility Act. The regulatory amendments will affect only large certificated air carriers.

The accounting requirements in this proposal are subject to the Paperwork Reduction Act, Pub. L. 96-511, 44 U.S.C. Chapter 35. A request for clearance of these requirements will be submitted to the Office of Management and Budget for review. It is anticipated that this rule will result in an annual burden reduction of 17 hours per carrier. Taking into account this reduction, the total estimated annual burden associated with this information collection (OMB Clearance No. 2138-0013) is 502 hours per carrier which represents the estimated burden associated with the Department's Uniform System of Accounts and Reports for Large Certificated Air Carriers. Any comments regarding this burden estimate or any aspect of these information requirements, including suggestions for reducing the reporting burden, may be sent to:

Director, Office of Aviation Information Management, DAI-1, U.S. Department of Transportation, Research and Special Programs Administration, 400 Seventh Street SW., Washington, DC 20590

and
Office of Information and Regulatory Affairs, DOT/RSPA Desk Officer, Office of Management and Budget, Washington, DC 20503.

Regulatory Identification Number

A regulatory information number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

List of Subjects in 14 CFR Part 241

Air carriers, Uniform system of accounts and reports.

Final Rule

Accordingly, the Department of Transportation amends 14 CFR Part 241, *Uniform System of Accounts and Reports for Large Certificated Air Carriers*, as follows:

PART 241—[AMENDED]

1. The authority for Part 241 continues to read as follows:

Authority: Sections 204, 401, 407, 416, 417, 901, 902, 1002 of the Federal Aviation Act of 1958, as amended; 49 U.S.C. 106, 1324, 1371, 1377, 1386, 1387, 1471, 1472 and 1482.

2. The table of contents of the Uniform System of Accounts and Reports for Large Certificated Air Carriers is amended by:

A. Removing sections 1-9, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8 and 5-9.

B. Revising the titles of Sections 2-1, 2-2, 2-3, 2-4, and 2-5 to read:

2-1 Generally accepted accounting principles.

2-2 Basis of allocation between entities.

2-3 Distribution of revenues and expenses within entities.

2-4 Accounting period.

2-5 Revenue and accounting practices.

C. Removing and reserving the title of section 5, Balance Sheet Account Groupings.

Section 03—[Amended]

3. Section 03, Definitions for Purposes of This System of Accounts and Reports, is amended by:

A. Removing the following definitions: Air carrier, route; Air transportation, supplemental; Exposed net asset position; Exposed net liability position; Express; Foreign currency transactions; Foreign currency translation; Forward exchange contract (forward contract); Interest rate implicit in the lease; Lease, Capital; Lease, direct financing; Lease, leveraged; Lease, operating; Lease, sales-type; Lessee's incremental borrowing rate; Marketable (as applied to an equity security); Market price; Market value (equity security); Minimum lease payments; Net unrealized gain or loss, marketable equity securities portfolio; Realized gain or loss, marketable equity security; Schedule, published; Service, irregular (excluding charter and special); Service, special; Service, tourist; Stop, fuel; and Valuation allowance, marketable equity securities portfolio.

B. Revising the following definitions: Agent, cargo; Air carrier, charter; Airport-to-airport distance; Certificate of Public Convenience and Necessity; Flight, developmental; Freight; Mail, nonpriority; Mail, priority; Person controlling an air carrier; Route, certificated; Section 418 cargo operations; Service, charter; Service, mixed; Service, nonscheduled; Stop, flag; Tariff, published; Traffic, deplaned; Traffic, enplaned; and Weight, passenger.

C. Adding the following new definitions: Department, DOT, and Generally Accepted Accounting Principles (GAAP).

Agency, cargo. Any person (other than the air carrier performing the direct air

transportation or one of its bona fide regular employees or an indirect air carrier lawfully engaged in air transportation under authority conferred by any applicable part of the Economic Regulations of the Department) who for compensation or profit: (1) Solicits, obtains, receives or furnishes directly or indirectly property or consolidated shipments of property for transportation upon the aircraft of an air carrier subject to this part, or (2) procures or arranges for air transportation of property upon aircraft of an air carrier subject to this part by charter, lease, or any other arrangement.

Air carrier, charter. An air carrier holding a certificate issued under section 401(d)(3) of the Federal Aviation Act of 1958, as amended.

Airport-to-airport distance. The great circle distance between airports, measured in statute miles in accordance with Part 247 of this Chapter.

Certificate of Public Convenience and Necessity. A certificate issued to an air carrier under section 401, of the Act, by the Department of Transportation authorizing the carrier to engage in air transportation.

Department. Department of Transportation.

DOT. Department of Transportation.

Flight, developmental. A flight for (1) the development of a new route either prior or subsequent to certification by the Department of Transportation; (2) the extension of an existing route; or (3) the integration of a new type of aircraft or service.

Freight. Property, other than mail, transported by air.

Generally accepted accounting principles (GAAP). The body of authoritative accounting knowledge governing the recording, presenting and disclosing of financial transactions, as incorporated in the pronouncements of the Financial Accounting Standards Board.

Mail, nonpriority. All mail for which transportation by air is provided on a space available basis.

Mail, priority. All mail for which transportation by air is provided on a priority basis.

Person controlling an air carrier. Any person, as defined in section 101 (32) of

the Act, whom the Department has found, in any proceeding, to control an air carrier, or who holds, directly or indirectly, the legal or beneficial ownership of more than 50 percent of the outstanding voting capital stock or capital of an air carrier, and who does not make a proper showing to the Department that he or she does not control the carrier despite such stock ownership, shall be deemed to be a person controlling the carrier for the purpose of this part. A brokerage firm which holds record ownership of securities merely for the convenience of the customer beneficially owning the stock shall not be deemed a person controlling an air carrier.

Route, certificated. The route(s) over which an air carrier is authorized to provide air transportation by a Certificate of Public Convenience and Necessity issued by the Department of Transportation pursuant to section 401(d) (1) or (2) of the Act.

Section 418 cargo operations. The carriage, pursuant to section 418 of the Act, by aircraft of property and/or mail as a common carrier for compensation or hire in commerce between a place in any State of the United States, or the District of Columbia, or Puerto Rico, or the U.S. Virgin Islands, and a place in any other of those entities, or between places in the same State or other entity through the air-space over any place outside thereof, or between places within the District of Columbia, Puerto Rico, or the U.S. Virgin Islands. This includes commerce moving partly by aircraft and partly by other forms of transportation, as well as commerce moving wholly by aircraft.

Service, charter. Nonscheduled air transport service in which the party receiving transportation obtains exclusive use of an agreed upon portion of the total capacity of an aircraft with the remuneration paid by the party receiving transportation accruing directly to, and the responsibility for providing transportation is that of, the accounting air carrier.

Service, mixed. Transport service for the carriage of both first-class and coach passengers on the same aircraft.

Service, nonscheduled. Includes transport service between points not covered by Certificates of Public Convenience and Necessity issued by the Department of Transportation to the air carrier; services pursuant to the charter or hiring of aircraft; other revenue services not constituting an integral part of the services performed

pursuant to published schedules; and related nonrevenue flights.

Stop, flag. A point on an air carrier's operating system that is scheduled to be served only when traffic is to be picked up or discharged.

Tariff, published. A publication containing fares and rates applicable to the transportation of persons or cargo and rules relating to or affecting such fares or rates of transportation, filed with the Department of Transportation.

Traffic, deplaned. A count of the number of passengers getting off and tons of cargo unloaded from an aircraft. For this purpose, passengers and cargo on aircraft leaving a carrier's system on interchange flights are considered as deplaning and the interchange point; and passengers and cargo moving from one operation to another operation of the same carrier, for which separate reports are required by the Department of Transportation, are considered as deplaning at the junction point.

Traffic, enplaned. A count of the number of passengers boarding and tons of cargo loaded on an aircraft. For this purpose, passengers and cargo on aircraft entering a carrier's system on interchange flights are considered as enplaning at the interchange point; and passengers and cargo moving from one operation to another operation of the same carrier, for which separate reports are required by the Department of Transportation, are considered as enplaning at the junction point.

Weight, passenger. For the purposes of this part, a standard weight of 200 pounds per passenger (including all baggage) is used for all civil operations and classes of service. Other weights may be prescribed in specific instances upon the initiative of the Department of Transportation or upon a factually supported request by an air carrier.

4. Section 1, Introduction to System of Accounts and Reports, is amended by removing Section 1-9, Conversion of this system of accounts and reports; and revising Sections 1-7 and 1-8 to read:

Sec. 1-7 Interpretation of accounts.

To the end that uniform accounting may be maintained, questions involving matters of accounting significance which are not clearly provided for should be submitted to the Director, Office of Aviation Information Management, DAI-1, Research and Special Programs Administration, for explanation, interpretation, or resolution.

Sec. 1-8 Address for reports and correspondence.

All reports required under this part and related correspondence shall be addressed to: Data Administration Division, DAI-20, Office of Aviation Information Management, Room 4125, Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, S.W., Washington, D.C., 20590.

Section 2—[Amended]

5. Section 2, General Accounting Policies, is amended by:

A. Removing Sections 2-3, Transactions in foreign currencies; 2-5, Liability accruals; 2-6, Income tax accruals; 2-7, Extraordinary items, discontinued operations, prior period adjustments and accounting changes; 2-8, Unaudited items; 2-9, Improvements, additions and betterments; 2-10, Capitalization of interest; 2-11, Accounting for transactions in gross amounts; 2-12, Acquisition and valuation of assets; 2-13, Establishment of allowances; 2-14, Depreciation and amortization; 2-15, Contingent assets and contingent liabilities; 2-16, Notes of financial statements; 2-18, Transactions between members of an affiliated group; 2-19, [Reserved]; 2-20, Accounting for leases; and 2-21, Accounting for troubled debt restructurings.

B. Redesignating section 2-1 as section 2-2; redesignating section 2-2 as section 2-3, and section 2-17 as section 2-5; and adding a new section 2-1 to read:

Sec. 2.1 Generally accepted accounting principles.

(a) The accounting provisions contained in this part are based on generally accepted accounting principles (GAAP). Persons subject to this part are authorized to implement, as prescribed by the Financial Accounting Standards Board, newly issued GAAP pronouncements until and unless the Director, Office of Aviation Information Management (OAIM), issues an Accounting Directive making an initial determination that implementation of a new pronouncement would adversely affect the Department's programs.

(b) The Director, OAIM, shall review each newly issued GAAP pronouncement to determine its effect on the Department's regulatory programs. If adopting a specific change in GAAP would adversely affect the Department's programs, the Director will issue the results of the review in the form of an Accounting Directive. The directive will state the reasons why the particular change should not be

incorporated in the uniform system of accounts and contain accounting guidance for maintaining the integrity of the Department's air carrier accounting provisions.

(c) Objections and comments relating to the Department's decision not to implement a change in generally accepted principles may be addressed to Director, Office of Aviation Information Management/RSPA, DAI-1, U.S. Department of Transportation, Washington, DC 20590. If significant objections are raised urging adoption of a particular GAAP pronouncement, the Department will institute a rulemaking.

C. Revising paragraph (b) of newly redesignated Sec. 2-2 to read as follows:

Sec. 2-2 Basis of allocation between entities

(b) Each transaction shall be recorded and placed initially under accounting controls of the particular air transport entity or organizational division of the air carrier or member of an affiliated group to which directly traceable. If applicable to two or more accounting entities, a proration shall be made from the entity of original recording to other participating entities on such basis that the statements of financial condition and operating results of each entity are comparable to those of distinct legal entities. The allocations involved shall include all debits and credits associated with each entity.

D. Revising the heading for newly redesignated Sec. 2-4 to read as follows:

Section 3—[Amended]

6. Section 3, *Chart of Balance Sheet Accounts*, is amended by adding general classification 2860 under "Stockholders' equity" to read:

Name of account	General classification
Stockholders' equity:	
Subscribed and unissued stock	2860

7. Section 4, *General*, is amended by revising paragraph (b) to read:

Section 4—[Amended]

(b) The balance sheet accounts prescribed in this system of accounts for each air carrier group are set forth in Section 3, *Chart of Balance Sheet*

Accounts. The balance sheet elements to be included in each account are presented in section 6.

Section 5—[Removed and Reserved]

8. Section 5, *Balance Sheet Account Groupings*, is removed and reserved.

9. Section 6, *Objective Classification of Balance Sheet Elements*, is amended by:

A. Revising the description of accounts 1510.1, 1510.2 and 1530 to read:

1510.1 Investments in Investor Controlled Companies

Record here the cost of investments in investor controlled companies except that permanent impairment in the value of securities may be reflected through charges to profit and loss classification 8100, Nonoperating Income or Expense—Net. This account shall also include the equity in undistributed earnings or losses since acquisition. In the event dividends are declared by such companies, the air carrier shall credit this account for its share in dividends declared and debit balance sheet account 1270 Accounts Receivable. This account shall separately state: (a) The cost of such investments at date of acquisition and (b) the equity in undistributed earnings or losses since acquisition.

1510.2 Investments in Other Associated Companies

Record here the cost of investments in associated companies other than investor controlled companies. Cost shall represent the amount paid at the date of acquisition without regard to subsequent changes in the net assets through earnings or losses of such associated companies. However, permanent impairment in the value of securities may be reflected through charges to profit and loss classification 8100, Nonoperating Income or Expense—Net.

1510.3

1530 Other Investments and Receivables

Record here notes and accounts receivable not due within one year, investments in securities issued by others, investments in leveraged leases, the noncurrent net investment in direct financing and sales-type leases, and the allowance for unrealized gain or loss on noncurrent marketable equity securities. Securities held as temporary cash investments shall not be included in this account but in balance sheet account 1100 Short-Term Investments.

Investments in and receivables from associated companies which are not settled currently shall be included in balance sheet account 1510 Investments in Associated Companies.

B. Inserting a paragraph immediately following the center heading, *Operating Property and Equipment* to read:

Operating Property and Equipment

"Operating Property and Equipment" shall encompass items used in air transportation services and services related thereto.

C. Revising paragraph (a) of account 1601 to read:

1601 Airframes

(a) Record here the total cost to the air carrier of airframes of all types and classes together with the full complement of instruments, appurtenances and fixtures comprising complete airframes including accessories necessary to the installation of engines and flight control and transmission systems, except as specifically provided otherwise in accounts 1602 and 1607. Also record here in separate subaccounts the costs of airframes overhauls accounted for on a deferral and amortization basis.

D. Revising paragraph (a) of account 1602 to read:

1602 Aircraft Engines

(a) Record here the total cost to the air carrier of complete units of aircraft engines of all types and classes together with a full complement of accessories, appurtenances, parts and fixtures comprising fully assembled engines as delivered by the engine manufacturer ready for operation in test but without the accessories necessary to its installation in airframes. Also record here in separate subaccounts the costs of aircraft engine overhauls accounted for on a deferral and amortization basis.

E. Revising the description of account 1607 to read:

1607 Improvements to Leased Flight Equipment

Record here the total cost incurred by the air carrier for modification, conversion or other improvements to leased flight equipment. Also record here, in separate subaccounts, the costs of airframe and aircraft engine overhauls of leased aircraft accounted for on a deferral and amortization basis.

F. Revising paragraph (a) of account 1608 to read:

1608 Flight Equipment Rotable Parts and Assemblies

(a) Record here the total cost to the air carrier of all spare instruments, parts, appurtenances and subassemblies related to the primary components of flight equipment units provided for in balance sheet accounts 1601 through 1607, inclusive. This account shall include all parts and assemblies of material value which are rotatable in nature, are generally reserviced or repaired, are used repeatedly and possess a service life approximating that of the property type to which they relate. Items of an expendable nature which generally may not be repaired and reused, shall not be recorded in this account but in account 1300 Spare Parts and Supplies. Except for recurrent service sales, flight equipment parts recorded in this account shall not be charged to operating expenses as retired. Profit or loss on sales of parts as a routine service to others shall be included in profit and loss account 14 General Service Sales, and parts sold shall be removed from this account at full cost irrespective of any allowance for depreciation which has been provided.

G. Revising paragraph (a) and the note following paragraph (b) of account 1629 to read:

1629 Flight Equipment Airworthiness Allowances

(a) Record here accumulated provisions for overhauls of flight equipment.

Note.—At the option of the air carrier, the number "2629" may be assigned to this account for accounting purposes. However, for purposes of reporting on RSPA Form 41, the balance in this account shall be reported under account "1629."

H. Revising paragraphs (a) through (h) of account 1630 to read:

1630 Equipment

(a) Equipment assigned to aircraft or active line operations as opposed to items held in stock for servicing passengers such as broilers, bottleware, dishes, food boxes, thermos jugs, blankets, first aid kits, etc. Spare items shall be carried in balance sheet account 1300 Spare Parts and Supplies and shall be charged directly to expense upon withdrawal from stock for replacing original complements.

(b) Equipment used in restaurants and kitchens.

(c) Equipment of all types and classes used in planing and handling traffic

and in handling aircraft while on ramps, including motorized vehicles used in ramp service. Classes of equipment used interchangeably between handling aircraft on ramps and in maintaining aircraft may be classified in accordance with normal predominant use.

(d) Nonairborne equipment of all types and classes used in meteorological and communication services which is not a part of buildings.

(e) Equipment of all types and classes including motorized vehicles used in engineering and drafting services and in maintaining, overhauling, repairing and testing other classes of property and equipment.

(f) Property and equipment of all types and classes used in ground and marine transportation services.

(g) Property and equipment of all types and classes used in storing and distributing fuel, oil and water, such as fueling trucks, tanks, pipelines, etc.

(h) All other ground equipment of all types and classes such as medical, photographic, employees' training equipment, and airport and airway lighting equipment.

I. Revising the descriptions of accounts 1636, 1640 and 1679 to read:

1636 Furniture, Fixtures, and Office Equipment

Record here the total cost to the air carrier of furniture, fixtures and office equipment of all types and classes wherever used or located.

1640 Buildings

Record here the total cost to the air carrier of owned buildings, structures and equipment and related improvements. Each air carrier shall maintain the following subaccounts in which the values fairly assignable to maintenance and other operations shall be separately recorded:

1640.1 Maintenance Buildings and Improvements

1640.9 Other Buildings and Improvements

1679 Land

Record here the initial cost and the cost of improving land.

J. Revising paragraph (a) of account 1689 to read:

1689 Construction Work in Progress

(a) Record here all direct and indirect costs of the air carrier that are expended for constructing and readying property and equipment of all types and classes for installation in operations. The amount reported shall reflect all such expenses that are accumulated to the balance sheet date. Where properly includable in the property and

equipment classification, record here also the accumulated costs for uncompleted overhauls of airframes, aircraft engines, or other material units of property.

K. Revising paragraph (a) of account 1695 to read:

1695 Leased Property Under Capital Leases.

(a) Record here the total costs to the air carrier for all property obtained under capital leases.

L. Revising paragraph (a) of account 1696 to read:

1696 Leased Property Under Capital Leases—Accumulated Amortization.

(a) Record here accruals for amortization of leased property obtained under capital leases.

M. Adding a paragraph after the center heading "Nonoperating Property and Equipment" to read:

Nonoperating Property and Equipment

"Nonoperating Property and Equipment" includes investments in property and equipment not separately accounted for within a nontransport division but assigned to other than air transportation and transport-related services, and property and equipment held for future use.

N. Revising the descriptions of accounts 1797, 1798 and 2080 to read:

1797 Property on Operating-type Lease to Others and Property Held for Lease.

Record here the total cost to the air carrier of property on operating-type lease to others and property held for lease.

1798 Property on Operating-type Lease to Others and Property Held for Lease—Accumulated Depreciation.

Record here accruals for depreciation of property on operating-type leases to others and property held for lease.

2080 Current Obligations Under Capital Leases.

Record here the total current liability applicable to property obtained under capital leases.

O. Revising paragraph (b) of account 2120 to read:

2120 Accrued Vacation Liability.

(b) This account shall be credited and the applicable personnel compensation expense account concurrently charged with the cost of any lag between vacations accrued and vacations taken.

Accruals may be based upon standard rates of lag, if such standard rates are verified by physical inventory and adjusted accordingly at least once each calendar year. Adjustments of balances in this account shall be cleared to applicable compensation expense accounts.

P. Revising the descriptions of accounts 2130, 2210, 2280, 2340 and 2345 to read:

2130 Accrued Taxes.

(a) Record here accruals for currently payable income and other forms of taxes which constitute a charge borne by the air carrier as opposed to those collected as an agent for others.

(b) Each air carrier shall disclose in the footnotes of its RSPA Form 41 for each calendar quarter whether utilized credits are accounted for by the flow-through method or the deferred method. The method selected shall be consistently followed by the carrier.

2210 Long-Term Debt.

(a) Record here the face value of principal amount of debt securities issued or assumed by the air carrier and held by other than associated companies, which has not been retired or cancelled and is not payable within 12 months of the balance sheet date.

(b) In cases where debt coming due within 12 months is to be refunded, or where payment is to be made from assets of a type not properly classifiable as current, the amount payable shall not be removed from this account. In addition, this account shall include short-term debt obligations when both the intent to refinance the short-term obligations on a long-term basis is established and the ability to consummate this refinancing can be demonstrated.

2280 Noncurrent Obligations under Capital Leases.

Record here the total noncurrent liability applicable to property obtained under capital leases.

2340 Deferred Income Taxes.

Record here credits and debits representing the net tax effect of material timing differences originating and reversing in the current accounting period, giving appropriate recognition to the portion of investment tax credits which would have been allowed if taxes were based on pretax accounting income by a reduction of the deferred tax provision.

2345 Deferred Investment Tax Credits.

Record here investment tax credits utilized as reduction of tax liabilities,

when the carrier exercises the option to defer such credits for amortization over the service life of the related equipment.

Q. Removing account 2950, Net Unrealized Loss on Noncurrent Marketable Equity Securities.

R. Revising paragraph (a) of account 2990 to read:

2990 Treasury Stock.

(a) Record here the cost of capital stock issued by the air carrier reacquired by it and not retired or canceled.

Section 7—[Amended]

10. Section 7, Chart of Profit and Loss Accounts, is amended by removing accounts 15, Mutual Aid; 15.1, Receipts; and 15.2, Payments.

Section 8—[Amended]

11. Section 8, General, is amended by revising paragraphs (d)(1)(i), (d)(2)(i), (d)(5), (d)(6), and (d)(7) to read:

(d) * * *

(1) *Operating revenues.* (i) This primary classification shall include revenues of a character usually and ordinarily derived from the performance of air transportation and air transportation-related services, which relate to services performed during the current accounting year, and adjustments of a recurrent nature applicable to services performed in prior accounting years.

(2) *Operating expenses.* (i) This primary classification shall include expenses of a character usually and ordinarily incurred in the performance of air transportation and air transportation-related services, which relate to services performed during the current accounting year, and adjustments of a recurring nature attributable to services performed in prior accounting years.

(5) *Discontinued operations.* This primary classification (9600) shall include earnings and losses of discontinued nontransport operations and gains or losses from the disposal of nontransport operations the result of which are customarily accounted for through profit and loss objective accounts 86, 87 and 88.2.

(6) *Extraordinary items.* This primary classification (9700) shall include material items characterized by their unusual nature and infrequent occurrence.

(7) *Cumulative effect of changes in accounting principles.* This primary classification (9800) shall include the cumulative effect of material changes in accounting principles.

Section 10—[Amended]

12. Section 10, *Functional Classification—Operating Expenses of Group I Air Carriers*, is amended by:

A. Amending account 5400, paragraph (e) by revising paragraph c. of account 5300 to read:

5400 Maintenance

* * * * *

(e) * * *

5300 Maintenance Burden.

* * * * *

c. This subfunction shall include only those expenses attributable to the current air transport operations of the air carrier. Maintenance burden associated with capital projects of the air carrier, other than overhauls of airframes and aircraft engines shall be allocated to such projects. Maintenance burden incurred in common with services to other companies and operating entities shall be allocated to such services on a pro rata basis unless the services are so infrequent in performance or small in volume as to result in no appreciable demands upon the air carrier's maintenance facilities. When overhauls of airframes or aircraft engines are as a consistent practice accounted for on an accrual basis instead of being expensed directly, maintenance burden shall be allocated to such overhauls on a pro rata basis. Standard burden rates may be employed for quarterly allocations of maintenance burden provided the rates are reviewed at the close of each calendar year. When the actual burden rate for the year differs materially from the standard burden rate applied, adjustment shall be made to reflect the actual cost incurred for the full accounting year. Allocations of maintenance burden to capital projects, and service sales to others shall be made through the individual maintenance burden objective accounts, except that the air carrier may make such allocations by credits to profit and loss account 77 Uncleared Expense Credits provided that use of that account will not undermine the significance of the individual maintenance burden objective accounts in terms of the expense levels associated with the air carrier's air transport services. Maintenance burden allocated to overhauls shall be credited to profit and loss subaccounts 5372.1 or 5372.6 Airworthiness Allowance Provisions.

B. By revising the description of account 7000 to read:

7000 Depreciation and Amortization.

This function shall include all charges to expense to record losses suffered through current exhaustion of the serviceability of property and equipment due to wear and tear from use and the action of time and the elements, which

are not replaced by current repairs, as well as losses in serviceability caused by obsolescence, supersession, discoveries, change in demand or actions by public authority. It shall also include charges for the amortization of capitalized developmental and preoperating costs, leased property under capital leases and other intangible assets applicable to the performance of air transportation. (See sections 6-1696, 1830 and 1890.)

Section 11—[Amended]

13. Section 11, *Functional Classification—Operating Expenses of Group II and Group III Air Carriers*, is amended by:

A. Amending account 5400, paragraph (e) by revising paragraph c. of account 5300 to read:

5400 Maintenance.

* * * * *

(e) * * *

5300 Maintenance Burden.

* * * * *

c. This subfunction shall include only those expenses attributable to the current air transport operations of the air carrier. Maintenance burden associated with capital projects of the air carrier, other than overhauls of airframes and aircraft engines, shall be allocated to such projects. Maintenance burden incurred in common with services to other companies and operating entities shall be allocated to such services on a pro rata basis unless the services are so infrequent in performance or small in volume as to result in no appreciable demands upon the air carrier's maintenance facilities. When overhauls of airframes or aircraft engines are as a consistent practice accounted for on an accrual basis instead of being expensed directly, maintenance burden shall be allocated to such overhauls on a pro rata basis. Standard burden rates may be employed for quarterly allocations of maintenance burden provided the rates are reviewed at the close of each calendar year. When the actual burden rate for the year differs materially from the standard burden rate applied, adjustment shall be made to reflect the actual costs incurred for the full accounting year. Allocations of maintenance burden to capital projects, and service sales to others shall be made through the individual maintenance burden objective accounts, except that the air carrier may make such allocations by credits to profit and loss account 77 Uncleared Expense Credits under such circumstances in which the use of that account will not undermine the significance of the individual maintenance burden objective accounts in terms of the expense levels associated with the air carrier's air transport services. Maintenance burden allocated to overhauls shall be credited to profit and loss subaccounts 5372.1 or 5372.6 Airworthiness Allowance Provisions.

B. By revising the description of account 7000 to read:

7000 Depreciation and Amortization.

This function shall include all charges to expense to record losses suffered through current exhaustion of the serviceability of property and equipment due to wear and tear from use and the action of time and the elements, which are not replaced by current repairs, as well as losses in serviceability occasioned by obsolescence, supersession, discoveries, change in popular demand or action by public authority. It shall also include charges for the amortization of capitalized developmental and preoperating costs, leased property under capital leases, and other intangible assets applicable to the performance of air transportation. (See sections 6-1696, 1830 and 1890.)

Section 12—[Amended]

14. Section 12, *Objective Classification—Operating Revenues and Expenses*, is amended by:

A. Revising paragraphs (a) and (c) of account 05 to read:

05 Mail.

(a) Record here revenue from the transportation by air of both United States and foreign mail.

* * * * *

(c) This account shall be subdivided as follows by all air carrier groups:

05.1 Priority.

Record here revenue from United States mail for which transportation by air is provided on a priority basis.

05.2 Nonpriority.

Record here revenue from United States mail for which transportation by air is provided on a space available basis.

05.3 Foreign.

Record here revenue from the transportation by air of mail other than United States mail.

B. Revising the description of account 08 to read:

08 Public Service Revenues (Subsidy).

Record here amounts of compensation received pursuant to the provisions of section 419 of the Federal Aviation Act under rates established by the Department of Transportation for the provision of essential air service to small communities.

C. Removing the account title and description of account 15, *Mutual Aid*.

D. Revising paragraph (a) of account 39 to read:

39 Traffic Commissions.

(a) Record here charges by others, including associated companies, for commissions arising from sales of transportation. Commissions, fees or other charges incurred for general

agency services, as opposed to commissions arising from sales of transportation, shall not be included in this account but in profit and loss account 43 General Services Purchased.

E. Revising the description of account 58 to read:

58 Injuries, Loss and Damage.

Record here the remainder of gains, losses or costs resulting from accidents, casualties or mishandlings, after offsetting insurance recoveries, as accumulated until finally determined in balance sheet account 1890 Other Assets and Deferred Charges. This account shall not include gains or losses from retirement of property and equipment resulting from casualties. Such gains or losses shall be recorded in appropriate capital gains or losses accounts.

F. Revising the description of account 61 to read:

61 Foreign Exchange Gains and Losses.

Record here gains or losses from transactions involving currency translations resulting from normal, routine, current fluctuations in rates of foreign exchange. Gains or losses of a nonroutine abnormal character and gains or losses which arise from long-term debt principal and interest transactions shall not be entered in this account but in profit and loss account 85, Foreign Exchange Gains and Losses.

G. Revising paragraph (b) of account 74 to read:

74 Amortization.

(b) This account shall be subdivided as follows by all air carrier groups:

74.1 Developmental and Preoperating Expenses

Record here amortization of the cost of projects carried in balance sheet account 1830 Unamortized Developmental and Preoperating Costs.

74.2 Other Intangibles.

Record here amortization of the cost of intangibles not provided for otherwise.

Section 14—[Amended]

15.A. Section 14, Objective Classification—Nonoperating Income and Expense, account 82, paragraph (a), is amended by revising the description of accounts 83.1, 83.2, 83.3, 83.4 to read:

82 Other Interest.

(a) * * *

83.1 Imputed Interest Capitalized—Credit.

Record here credits related to imputed interest capitalized and recorded in asset accounts.

83.2 Imputed Interest Deferred—Debit.

Record here debits related to imputed interest deferred in balance sheet account 2390, Other deferred credits.

83.3 Imputed Interest Deferred—Credit.

Record here periodic credits for imputed interest, cleared to this account as the amount of such interest in the asset accounts is amortized.

83.4 Interest Capitalized—Credit.

Record here interest which is capitalized and recorded in asset accounts.

B. Account 85 is revised to read as follows:

85 Foreign exchange gains and losses.

Record here gains and losses from transactions involving currency translations resulting from nonroutine abnormal changes in rates of foreign exchange and gains or losses which arise from translations of long-term debt principal and interest transactions.

C. Account 89, paragraph (b), is amended by revising 88.1, 88.3, 88.4, and 89.1 to read as follows:

89 Other nonoperating income and expense—net.

* * *

(b) * * *

88.1 Intercompany Transaction Adjustment—Credit.

Record here all intercompany credits for any differences between amounts at which transactions between the air carrier and its nontransport divisions or associated companies are initially recorded and are to be settled.

* * *

88.3 Net Unrealized Gain or Loss on Marketable Equity Securities.

Record here the net unrealized gain or loss on the valuation of marketable equity securities.

88.4 Net Realized Gain or Loss on Marketable Equity Securities.

Record here the net realized gain or loss on the valuation of marketable equity securities.

* * *

89.1 Intercompany Transaction Adjustment—Debit.

Record here all intercompany debits for any differences between amounts at which transactions between the air carrier and its nontransport divisions or associated companies are initially recorded and are to be settled.

* * *

Section 15—[Amended]

16. Section 15, Objective Classification—Income Taxes for Current Period, is amended by revising the description of account 91 to read:

91 Provision for Income Taxes.

(a) Record here quarterly provisions for accruals of Federal, State, local, and foreign taxes based upon net income, computed at the normal tax and surtax rates in effect during the current

accounting year. In general, this account shall reflect provisions within each period for currently accruing tax liabilities as actually or constructively computed on tax returns, and any subsequent adjustments. This account shall include credits for refund claims arising from the carryback of losses in the year in which the loss occurs, credits for the carry-forward of losses in the year to which the loss is carried, and investment tax credits in the year in which each credit is utilized to reduce the liability for income taxes.

(b) Income taxes shall be allocated among the transport entities of the air carrier, its nontransport divisions, and members of an affiliated group. Under circumstances in which income taxes are determined on a consolidated basis by an air carrier and other members of an affiliated group, the income tax expense to be recorded by the air carrier shall be the same as would result if determined for the air carrier separately for all time periods, except that the tax effect of carryback and carryforward operating losses, investment tax credits, or other tax credits generated by operations of the air carrier shall be recorded by the air carrier during the period in which applied in settlement of the taxes otherwise attributable to any member, or combination of members, of the affiliated group. Any difference between the income tax so recorded and the amount at which settlement is to be made shall be recorded in subaccount 88.1 Intercompany Transaction Adjustment—Credit or in subaccount 89.1 Intercompany Transaction Adjustment—Debit, as is appropriate.

(c) This account shall be subdivided as follows by all carrier groups:

91.1 Income Taxes Before Investment Tax Credits.

Record here accruals of income taxes based upon taxable income of the period.

91.2 Investment Tax Credits Utilized.

Record here investment tax credits utilized to reduce the accrued liability for income taxes.

Section 17—[Amended]

17. Section 17, Objective Classification—Extraordinary Items, is amended by revising the description of account 96 to read:

96 Extraordinary Items.

Record here material items characterized by their unusual nature and infrequent occurrence. Events or transactions which are material and either unusual or nonrecurring, but not both, shall be recorded in the profit and loss accounts to which they relate and disclosed on RSPA Form 41 Schedule P—

2 with identification as to their nature and financial effects.

Section 24—[Amended]

18. Section 24, Profit and Loss Elements, is amended by:

A. Revising the title and paragraph (e), and removing paragraphs (f) through (p) to Schedule P-2 to read:

Schedule P-2—Notes to RSPA Form 41 Report

(e) Each scheduled air carrier shall include on this schedule a description of each interruption in air transport operations, the aggregate effect of which is ten (10) percent or more of the scheduled revenue plane-miles which, except for the interruption, would have been operated during the month or either of 2 consecutive months affected. The information to be reported for each such interruption in operations shall consist of:

(1) For the report period in which partial or complete interruption first occurs, the nature of the interruption and dates of partial and/or complete cessation of operations, as applicable;

(2) For each report period until full resumption of operations, an estimate of the revenue plane-miles canceled in each month of the quarter because of the interruption; and

(3) For the report period in which scheduled operations are resumed, dates of partial and/or complete resumption, as applicable.

B. Adding paragraph (f) of Schedule P-5.2 to read:

Schedule P-5.2—Aircraft Operating Expenses

(f) Item 79.6 "Applied Maintenance Burden" shall reflect a memorandum allocation by each air carrier of the total expenses included in subfunction 5300 "Maintenance Burden" between maintenance of flight equipment, by aircraft type, and maintenance of ground property and equipment. The allocation of subfunction 5300 (maintenance burden) shall include the net effect of charges and credits to profit and loss account 5272 Flight Equipment Airworthiness Provisions.

Issued in Washington, DC on January 27, 1989.

M. Cynthia Douglass,

Administrator, Research and Special Programs Administration, DOT.

[FR Doc. 89-2445 Filed 2-3-89; 8:45 am]

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COMMODITY FUTURES TRADING COMMISSION

17 CFR Part 4

Statement of the Commodity Futures Trading Commission Regarding Disclosure by Commodity Pool Operators of Past Performance Records and Pool Expenses and Request for Comments

AGENCY: Commodity Futures Trading Commission.

ACTION: Interpretive Statement and Request for Comments.

SUMMARY: The Commodity Futures Trading Commission is publishing this interpretive statement and request for comments in order to assist commodity pool operators in complying with requirements concerning the disclosure of past performance records and pool expenses.

DATE: Comments should be received on or before April 7, 1989.

ADDRESS: Please submit written comments to the Office of the Secretariat, Commodity Futures Trading Commission, 2033 K Street NW., Washington, DC 20581.

FOR FURTHER INFORMATION CONTACT: Tobey W. Kaczynsky, Associate Director, Division of Trading and Markets, Commodity Futures Trading Commission, 2033 K Street NW., Washington, DC 20581. Telephone: (202) 254-8955.

SUPPLEMENTARY INFORMATION: The Commodity Futures Trading Commission ("CFTC" or "Commission") is today reminding commodity pool operators ("CPOs") who solicit participations, or accept or receive funds, securities or other property in respect of participations, in publicly offered commodity pools registered under the Securities Act of 1933 (the "Securities Act")¹ or the Securities Exchange Act of 1934 ("Exchange Act")² of certain disclosure obligations under the Commodity Exchange Act (the "CEA"),³ as more particularly set forth in Part 4 of the CFTC's regulations.⁴ This interpretive statement and request for comments is being issued simultaneously with a companion release of the Securities and Exchange Commission ("SEC") generally addressing the same issues.⁵ The CFTC,

¹ 15 U.S.C. 77a.

² 15 U.S.C. 78a.

³ 7 U.S.C. 1.

⁴ 17 CFR Part 4 (hereinafter, all references to CFTC regulations will use the appropriate CFR citation).

⁵ This release principally addresses issues raised in the context of public pools. However, given the

to the extent applicable, incorporates by reference the views expressed by the SEC in its interpretive statement. Commenters may wish to make the same submission to both agencies. The companion statements reflect a continuing effort on behalf of the CFTC and the SEC to maintain consistent, coordinated requirements for publicly offered commodity pools.

I. Background

Part 4 of the CFTC's regulations contains comprehensive disclosure requirements for CPOs.⁶ Among other things, Part 4 requires that a current "Disclosure Document" be delivered to each prospective pool participant prior to the solicitation of the participant or the participant's commitment of funds to a pool.⁷ This Disclosure Document also must be filed with the CFTC twenty-one days prior to its first use.⁸ Under Commission rules, pool disclosure documents must address specifically the management policies of the pool and how the pool will be traded and operated including, without limitation: the five-year business background of its CPOs, CTAs and their respective principals; the financial interests of such persons in the specific pool being offered; and any actual or potential conflict of interest involving, or any material civil, criminal or administrative action against, any CPO, CTA or the principals of either within the preceding five years. Additionally, the document must indicate: the minimum aggregate amount of funds that must be received before the pool will commence trading; the responsibility, if any, of participants to contribute additional capital; and the pool's policies concerning distributions from profits or capital.⁹

fact that the CEA and CFTC regulations thereunder generally apply equally to private pools and to public pools, the views expressed herein, unless otherwise specified, also apply to private pools.

⁶ The CEA defines a "commodity pool operator" as "any person engaged in a business which is of the nature of an investment trust, syndicate, or similar form of enterprise, and who, in connection therewith, solicits, accepts, or receives from others, funds, securities, or property, either directly or through capital contributions, the sale of stock or other forms of securities, or otherwise, for the purpose of trading in any commodity for future delivery on or subject to the rules of a contract market . . ." 7 U.S.C. 2. The CEA defines a "commodity trading advisor" ("CTA") as "any person who, for compensation or profit, engages in the business of advising others . . . as to the value of or the advisability of trading in any contract of sale of a commodity for future delivery made or to be made on or subject to the rule of a contract market . . ." 7 U.S.C. 2.

⁷ 17 CFR 4.21(a). A "pool" is defined as "any investment trust, syndicate, or similar form of enterprise operated for the purpose of trading commodity interests." 17 CFR 4.10(d).

⁸ 17 CFR 4.21(g).

⁹ 17 CFR 4.21(a)(8) and 4.21(a)(12).

Part 4 of the CFTC's regulations also specifically requires disclosure of the actual performance record (*i.e.*, the past performance history) of the pool's CPO, CTAs and their respective principals.¹⁰ Such disclosures must include the past performance history of *all* pools, public or private, as well as that of individual accounts operated or traded by the CPO and its CTAs. Part 4 separately requires a complete description of each kind of expense that may be charged to a pool or its participants which specifies whether such expenses are actual or estimated.¹¹

Part 4 also contains a specified risk disclosure statement which warns that a pool participant may lose his or her entire interest in the pool and that pools may be subject to significant charges so that substantial trading profits may be required to avoid the depletion or exhaustion of pool assets.¹²

The National Futures Association ("NFA"), which is the self-regulatory organization ("SRO") responsible, under CFTC oversight, for CPO and CTA compliance with the CFTC's disclosure requirements, has adopted additional rules approved by the CFTC that pertain to pool disclosures. For example, NFA rules prohibit the use of promotional material which includes any reference to actual past trading profits without a statement that "past results are not necessarily indicative of future results * * *."¹³ NFA generally

requires that this statement be included in the disclosure document adjacent to the performance table and the Commission believes that it should appear in bold face print and in a prominent place immediately preceding the past performance tables required by Part 4.

In any event, CFTC regulations expressly require that a CPO make *all* material disclosures when offering pool participations.¹⁴ As a consequence, to assist CPOs, the CFTC is publishing these views on certain types of disclosures which should be considered material in connection with past performance and pool expense information required to be disclosed to pool participants in order that such required disclosures are not misleading. Additionally, the CFTC is requesting comment on matters related to the presentation of prior performance data by CPOs and CTAs and the presentation of the fees, commissions and expenses incurred by pools. Although the positions expressed in this release reflect the CFTC's views regarding appropriate disclosure in pool disclosure documents, the CFTC is interested in receiving comments on the interpretive positions and other issues set forth herein. The CFTC, in consultation with the SEC, will review the comments received in response to this release with a view toward determining whether further action in addition to this statement is appropriate.

II. Commodity Pool Participation and Performance

In recent years, the futures markets have grown both in volume and in the diversity of products traded thereon, especially the financial, foreign currency and equity-related products. The commodity pool is an increasingly popular means of participation in these markets by the individual customer. In a typical commodity pool, the promoter or CPO pools participants' funds and uses a portion thereof to margin futures positions held by the pool.¹⁵ Trading decisions for the commodity pool generally are made by one or more CTAs selected by the CPO.

The disclosure document provided to pool participants must meet applicable registration, disclosure, antifraud and other requirements of the federal

securities laws as well as comply with the CEA and all applicable CFTC regulations.¹⁶ Persons who propose to offer participations in public commodity pools should carefully review the requirement that, in addition to the specific disclosures required by Part 4 of the CFTC's regulations, CPOs must disclose all material information to existing and prospective pool participants.¹⁷

Certain recently published studies suggest that the actual performance of CTAs employed by publicly held commodity pools was significantly poorer than their previous performance as disclosed in the prior performance tables included in those pools' disclosure documents.¹⁸ CFTC staff is currently reviewing the study results and will investigate possible reasons for the differences in performance reported by the authors if available data permits. To the extent that significant differences exist between the past performance records required to be disclosed in a particular pool disclosure document and the actual subsequent performance of that pool, such differences may be the result of differences between the trading and money management strategies of the current pool and those of the pool or pools previously offered by the relevant CPO or CTAs. For example, it would not be uncommon for significant differences to exist in the proportion of funds committed to margin futures positions and, thus, in the ratio of trading margin to overall equity.¹⁹

Pending completion of its review of the recently published studies, the CFTC recommends that special attention be given to disclosures in the following areas.

III. Performance Reporting

A. Length of Period Covered by Performance Tables

As mentioned above, CFTC Regulation 4.21 requires that the disclosure document provided to prospective pool participants include, among other things, information with respect to the actual performance of previously operated commodity pools and trading accounts of the CPO, the

¹⁰ 17 CFR 4.21(a)(4) and 4.21(a)(5).

¹¹ 17 CFR 4.21(a)(7). This requirement includes, without limitation, an itemization of fees for management, trading advice, brokerage commissions, legal advice, accounting services and organizational services. That Regulation also requires the disclosure of any expense which has been or is to be paid by a person other than the CPO. 17 CFR 4.21(a)(17)(iv). When any expense is determined by reference to "net assets," "gross profits," "net profits" or "net gains," the CPO must define that term. 17 CFR 4.21(a)(7)(ii).

¹² 17 CFR 4.21(a)(17). The Risk Disclosure Statement must appear as the only language on the page immediately following the cover page and must contain specified language including, in part, the following statements:

YOU SHOULD CAREFULLY CONSIDER WHETHER YOUR FINANCIAL CONDITION PERMITS YOU TO PARTICIPATE IN A COMMODITY POOL. YOU MAY LOSE A SUBSTANTIAL PORTION OR EVEN ALL OF THE MONEY YOU PLACE IN THE POOL.

IN CONSIDERING WHETHER TO PARTICIPATE IN A COMMODITY POOL, YOU SHOULD BE AWARE THAT TRADING COMMODITIES CAN QUICKLY LEAD TO LARGE LOSSES AS WELL AS GAINS. SUCH TRADING LOSSES CAN SHARPLY REDUCE THE NET ASSET VALUE OF THE POOL AND CONSEQUENTLY THE VALUE OF YOUR INTEREST IN THE POOL. ALSO, MARKET CONDITIONS MAY MAKE IT DIFFICULT OR IMPOSSIBLE FOR THE POOL TO LIQUIDATE A POSITION.

¹³ NFA Compliance Rule 2-29(b)(5). Further, NFA Compliance Rule 2-29(g) includes disclosure documents within the definition of promotional

material. Moreover, NFA Compliance Rule 2-13 adopts the CFTC's Part 4 regulations by reference.

¹⁴ A CPO is required to disclose all material information to existing or prospective pool participants even if such information is not otherwise specifically required by Part 4. 17 CFR 4.21(h).

¹⁵ See 1 P. Johnson, *Commodities Regulation* § 1.15, at 52 (1982).

¹⁶ See 7 U.S.C. 6m(2), 15 U.S.C. 77b(1) and 15 U.S.C. 78c(a)(10).

¹⁷ See n.14, *supra*.

¹⁸ See Elton, Gruber and Rentzler, *New Public Offerings, Information and Investor Rationality: The Case of Publicly Offered Funds*, 62 J. Bus. L. 1-15 (January 1988); see also Edwards, *Commodity Pool Performance: Is the Information Contained in Pool Prospectuses Useful?*, Working Paper Series No. 16, Center for the Study of Futures Markets, Columbia Business School (January 1988).

¹⁹ *Id.*

CTA, and their respective principals. Such prior performance tables must be provided for at least the lesser of three years or the life of the commodity pool or individual trading account for which the performance data are provided.²⁰ Beyond the required three years, CPOs have discretion to elect to provide historical performance data for additional time periods subject to the obligation to disclose all material information and to the antifraud provisions of the CEA.²¹ Where performance history in excess of the required three years is provided for either the CPO or CTA, the CPO must ensure that the additional performance data is not selected in such a way as to misrepresent the overall performance history of the CPO or CTA.²² In addition, where performance history for periods greater than three years is shown, the CFTC staff generally has advised that at least five years' performance or the entire performance history, if it is available, should be presented. In this connection, the CFTC notes that a CPO is required to maintain all pool records for at least five years.²³

Comment is requested as to whether the presentation of prior performance data in excess of the currently required three years is useful to participants in making the decision to purchase a pool participation. If so, further comment is requested as to whether the CPO should be required to present the performance history of the CPO and CTA for a longer period such as five years or more, if such performance history is available. In addressing this issue, commenters should discuss specifically those factors that would cause a presentation covering more than three years to be relevant to potential participants in a currently offered pool. The CFTC also requests comment generally on the extent to which the presentation of prior performance may be useful to persons in deciding whether to purchase an interest in a given pool offering in view of the general nonpredictability of trading results.

B. Periodic Reporting

CFTC regulations require that the prior performance of a pool's CPO and CTA be presented on at least a quarterly basis.²⁴ However, in the

CFTC's view, performance disclosure on a monthly basis may be more appropriate, particularly when such monthly performance is volatile.

The CFTC believes that a majority of CPOs and CTAs affiliated with publicly offered commodity pools currently maintain records and present performance history in their disclosure documents on a monthly basis. The CFTC recommends that all CPOs and CTAs affiliated with, or contemplating an affiliation with, a publicly offered commodity pool should, if not currently doing so, consider maintaining records of past performance and presenting such performance on a monthly basis. Moreover, to facilitate a pool participant's review and analysis of prior performance presentations, all prior performance tables for the CPO and its CTAs should be shown, to the extent possible, in a consistent format. Comment is requested as to whether monthly performance reporting should be required in all cases.

C. Composite Performance

CFTC regulations permit prior performance disclosure to be made on either an individual or a composite basis.²⁵ If a composite presentation is elected, separately captioned composites of previously traded public pools of the CPO and its CTAs may be appropriate when differences between the performance of such public pools and any private accounts are material.²⁶ Comment is requested as to whether there should be a separate presentation of prior public pool performance of the CPO and its CTAs in all cases or whether a textual explanation of the differences in such account performance may be sufficient in some circumstances. Specifically, the CFTC requests comment on whether performance disclosure in public pool disclosure documents should be limited to the prior performance of publicly offered pools or whether the performance of publicly offered pools should be highlighted.

To enable a participant better to evaluate prior performance presentations, prior performance tables in a public pool disclosure document should be accompanied by textual disclosure regarding any material differences in trading objectives for the pools or trading accounts displayed in the prior performance tables and those objectives for the pool for which the

disclosure document is being distributed.²⁷ For example, specific disclosure should be considered where the margin-to-equity ratio of the commodity pools of trading accounts on which historical performance data are based is materially different from that which will be permitted in the currently offered commodity pool or where there are other material differences in how the current pool will be traded.

Comments are requested concerning what other factors may be relevant to properly interpreting the information contained in the prior performance tables. Comments are also requested as to whether requiring monthly performance disclosure and improving the rate of return calculations as discussed below would be sufficient to address the issues raised above.

D. Additions and Withdrawals and the Rate-of-Return Calculation

The CFTC's regulations require that CPOs and CTAs also present performance in terms of the rate of return for the period contained in the performance table by dividing net performance for the period by the beginning net asset value ("BNAV") for that period.²⁸ The CFTC chose this formula over more complex measures in order to minimize computational and reporting burdens upon CPOs. This approach assumes that additions or withdrawals are ordinarily made at the beginning of a reporting period. However, as that may not be the case in practice, this method may result in unjustifiably high or low rates of return. If average daily equity ("ADE") were used as a divisor, or adjustments were made to BNAV to achieve a closely equivalent result, the rate of return may be affected less by the timing of additions and withdrawals. The CFTC staff has accepted such alternate presentations where it has been demonstrated that timing differences with respect to additions and withdrawals would materially distort performance.

The CFTC requests comment on the feasibility of requiring that rates of return be computed by dividing net performance by ADE. The CFTC also requests comment as to whether the use of BNAV still should be permitted when the effects of using one measure in preference to the other would not materially affect the rate of return. In this connection, comment is sought specifically on the feasibility of establishing a standard which would

²⁰ 17 CFR 4.21(a)(4)(i) and 4.21(a)(5)(i).

²¹ See 17 CFR 4.21(a)(4), 17 CFR 4.21(h) and 7 U.S.C. 6c.

²² 17 CFR 4.21(a)(4), 4.21(a)(5) and 4.21(h).

²³ 17 CFR 4.23 and 1.31.

²⁴ 17 CFR 4.21(a)(4)(ii) and 4.21(a)(5)(ii).

²⁵ 17 CFR 4.21(a)(4)(iv) and 4.21(a)(5)(iii).

²⁶ The CFTC has been advised that such differences are likely if the private account performance reflected proprietary trading. See also 17 CFR 4.21(a)(4)(iv)(B).

²⁷ 17 CFR 4.21(a)(4)(iii) and 4.21(a)(5)(iii)(A).

²⁸ 17 CFR 4.21(a)(4)(ii) and 4.21(a)(5)(ii).

provide guidance as to when the use of BNAV would be permitted.

IV. Disclosure of Fees, Commissions and Expenses

CFTC regulations require a complete description on all expenses to be charged to or incurred by a pool, including any interest paid with respect to pool assets to a person other than the pool itself.²⁹ In order to facilitate analysis of the fees and other expenses to be charged to a publicly offered commodity pool, the CFTC believes that in addition to a narrative description, CPOs should include a tabular presentation prior to the performance tables that details the brokerage commissions, incentive, management and transaction fees, as well as any other expenses attributable to the commodity pool that will be paid directly or indirectly by participants.

The CFTC requests comment on whether it should require that this discussion of expenses be supplemented with a *pro forma* presentation of prior performance history which reflects the brokerage commissions and incentive and management fees that would have been incurred if the fees and expenses charged by commodity pools and trading accounts presented in the prior performance tables were the same as those to be charged to the current pool. Such a *pro forma* presentation should disclose the actual and *pro forma* net return achieved for the last three years. Notwithstanding the foregoing, comment is also requested as to whether this type of presentation, or other *pro forma* presentations based on actual prior results, may cause participants to rely unduly upon prior performance as an indicator of future performance.

Further, comments are solicited as to whether additional disclosure would assist prospective participants in assessing the extent to which expenses charged to a pool could influence the pool's prospective performance. For example, it may be useful to include in the disclosure document the amount by which each unit of participant's net asset value must increase in the first year of trading for the redemption value of that unit to equal the gross purchase price paid to purchase it. Alternatively, the disclosure statement could include a calculation of the net asset value *per* unit, net of sales commissions and other expenses which will be deducted prior to the funds generated by the sale of

such participation unit being pooled for futures trading. In this connection, commenters should address the problem of assessing prospectively the effect of incentive fees.

Commenters also are invited to address whether other disclosure modifications are needed to make uniform the presentation of fees and expenses, particularly because the rate of return formula is especially sensitive to the timing of the deduction of such expenses.

V. Conclusion

Although this interpretive statement and the interpretive statement published simultaneously herewith by the SEC represent the views of the respective agencies with respect to certain information which may be material in connection with disclosure documents filed with the CFTC for the offering of participations in commodity pools, nothing in the statements should be construed to diminish the obligation of CPOs and other CFTC registrants to comply with all applicable disclosure requirements of the CEA and the CFTC's regulations thereunder. Attention particularly is directed to the antifraud provisions of the CEA which apply not only to statements made in documents filed with the CFTC, but also to all statements or omissions made in connection with any pool offering.³⁰ The CFTC expects to provide further guidance following review of the comments received in response to this release and completion of the CFTC's staff study. In this regard, the agency expects to consult with the SEC concerning the comments to its companion release.

* * * * *

List of Subjects in 17 CFR Part 4

General Provisions, Definitions and Exemption, Commodity Pool Operators, Commodity Trading Advisors, Advertising.

Issued this 1st day of February 1989.

Jean A. Webb,
Secretary to the Commission.

[FR Doc. 89-2681 Filed 2-3-89; 8:45 am]

BILLING CODE 6351-01-M

³⁰ CPOs are specifically reminded of the quarterly and annual reporting obligations set forth in 17 CFR 4.22.

SECURITIES AND EXCHANGE COMMISSION

17 CFR Parts 231 and 241

[Release Nos. 33-6815; 34-26508 [S7-1-89]]

Statement of the Commission Regarding Disclosure by Issuers of Interests in Publicly Offered Commodity Pools

AGENCY: Securities and Exchange Commission.

ACTION: Interpretation and Request for Comment.

SUMMARY: The Securities and Exchange Commission ("Commission") is publishing this release and request for comments regarding disclosure by issuers of interests in publicly offered commodity pools simultaneously with an interpretive statement and request for comments by the Commodity Futures Trading Commission ("CFTC"). In this statement, the Commission to the extent applicable, incorporates by reference the views expressed by the CFTC in its interpretive statement, and reminds issuers of interests in publicly offered pools of their disclosure obligations under the federal securities laws. In addition, the Commission in requesting comment on several matters related to the presentation of prior performance by commodity pool operators and commodity trading advisors, and the presentation of fees, commissions and expenses to be incurred by the typical professionally managed commodity pool. The companion statements reflect a continuing effort on behalf of the CFTC and the Commission to maintain consistent coordinated requirements for publicly offered commodity pools.

DATE: Comments should be received on or before April 7, 1989.

ADDRESS: Comments should be submitted in triplicate to Jonathan G. Katz, Secretary, Securities and Exchange Commission, 450 Fifth Street NW., Washington, DC 20549. Comment letters should refer to File No. S7-1-89. All comment letters will be available for public inspection and copying in the Commission's Public Reference Room 450 Fifth Street NW., Washington, DC 20549.

FOR FURTHER INFORMATION CONTACT: John C. Roycroft, Assistant Director, or Daniel W. Rumsey, Attorney, at (202) 272-7628, Division of Corporation Finance, Securities and Exchange Commission, 450 Fifth Street, Washington, DC 20549.

²⁹ 17 CFR 4.21(a)(7) and 4.21(a)(9). See also 17 CFR 4.22(a).

SUPPLEMENTARY INFORMATION: The Commission today is reminding issuers of interests in publicly offered commodity pools registered under the Securities Act of 1933 ("Securities Act")¹ or the Securities Exchange Act of 1934 ("Exchange Act")² of their disclosure obligations under those Acts. In connection herewith, and to the extent applicable, the Commission incorporates by reference the views expressed by the CFTC regarding the disclosure requirements under the Commodity Exchange Act ("CEA")³ and CFTC regulations.⁴ The CFTC's views are set forth in an interpretive statement and request for comments being published simultaneously herewith.

The views expressed in this interpretive statement should be considered in connection with a registrant's obligation to disclose, in registration statements and other filings with the Commission, material information to investors that is necessary to make the required disclosure not misleading.⁵ In addition, the Commission is requesting comment on several matters related to the presentation of prior performance by commodity pool operators and commodity trading advisors, and the presentation of fees, commissions and expenses to be incurred by the typical professionally managed commodity pool.

I. Background

Issuers of interests in commodity pools must comply with applicable registration, disclosure, antifraud and other requirements of the federal securities laws.⁶ In view of the CFTC's jurisdiction over commodity interest trading, commodity pool offerings also must comply with the regulations promulgated by the CFTC regarding commodity pool operators and commodity trading advisors and their associated persons as particularly set forth in the CFTC's interpretive statement. Accordingly, where interests

in a commodity pool are registered with the Commission, the disclosure document provided to investors must comply with the disclosure and other requirements of both the federal commodity and securities laws.⁷

The Commission's staff has historically referred to the CFTC's requirements as a starting place in formulating its own disclosure standards applicable to offerings of commodity pools registered with the Commission. The companion statements reflect a continuing effort on behalf of the CFTC and the Commission to maintain consistent coordinated requirements for publicly offered commodity pools. Registrants should nevertheless independently review their disclosure responsibilities and potential liabilities under both the federal commodity and securities laws in the offer and sale of these securities.

Certain recently published studies suggest that the actual performance of publicly held commodity pools was significantly lower than the performance disclosed in the prior performance tables included in commodity pool disclosure documents.⁸ While the findings and issues raised in these studies are currently being reviewed by the staff of the CFTC, the Commission believes that it should provide guidance to issuers of publicly offered commodity pools at this time. Although the positions expressed in this release and the CFTC's interpretive statement currently reflect the respective agencies' views regarding appropriate disclosure in commodity pool disclosure documents, the Commission is interested in receiving views on the interpretive positions expressed in those statements. Commentators may wish to make the same submission to both agencies. The Commission expects to consult with the CFTC concerning the comments received in response to their respective statements with a view

toward determining whether further action is necessary or appropriate.

II. Disclosure of Prior Performance Tables

Section 4.21 of the CFTC's regulations requires that the disclosure document provided to prospective investors include, among other things, information with respect to the actual performance of previously operated commodity pools and trading accounts of the commodity pool operator, the commodity trading advisor, and their respective principals (the "performance history").⁹ In this connection, the CFTC's rules require that the disclosure document include performance history for at least the lesser of three years or the life of the commodity pool or trading account.¹⁰ Beyond the required three years, registrants have discretion, subject to the risk of liability under the antifraud provisions of the federal commodity¹¹ and securities laws,¹² to present performance history for any additional time periods. Where performance history is provided in excess of three years, however, the additional performance data should not be selected in such a way so as to misrepresent the overall performance history of the commodity pool operator or commodity trading advisor. Thus, where performance history for periods greater than the required three years is presented, the additional performance history should not differ materially from the commodity pool operator's or commodity trading advisor's overall historical performance.¹³

Comment is requested as to whether the presentation of prior performance data beyond the required three years is useful to investors in making their investment decision. If so, further comment is requested as to whether registrants should be required to present the entire performance history of the commodity pool operator and commodity trading advisor, or alternatively, whether registrants should be required to present performance history for some period greater than three years, such as five, seven or ten years where such performance data is

¹ See, e.g., Securities Act section 10(a)(3), 15 U.S.C. 77(a)(3), which specifies the information required to be in a prospectus used in connection with a registered offering of securities.

² See Elton, Gruber & Rentzler, *New Public Offerings, Information and Investor Rationality: The Case of Publicly Offered Funds*, 62 J. Bus. 1-15 (January 1989). The authors hypothesized that the findings of the study were at least in part due to the following factors: (1) Public commodity pools have larger transaction costs and management fees than private commodity accounts; (2) only trading advisers with recent successful track records are likely to go public; and (3) trading advisers can select the period of time for disclosing their prior performance, resulting in an upward bias in performance results. See also Edwards & Ma, *Commodity Pool Performance: Is the Information Contained in Pool Prospectuses Useful?* Working Paper Series No. 16, Center for the Study of Futures Markets, Columbia Business School (January 1988).

³ 15 U.S.C. 77a et seq.

⁴ 15 U.S.C. 78a et seq.

⁵ 7 U.S.C. 1 et seq.

⁶ E.g., 17 CFR Part 4.

⁷ See Securities Act section 17(a), 15 U.S.C. 77q(a); Securities Act Rule 408, 17 CFR 230.408; Exchange Act section 10(b), 15 U.S.C. 78j(b); Exchange Act Rule 10b-5, 17 CFR 240.10b-5; Exchange Act Rule 12b-20, 17 CFR 240.12b-20. See also *Basic Inc. v. Levinson*, 108 S. Ct. 978 (1988).

Registrants also are reminded of their obligation to present information in a clear, concise and understandable manner. Securities Act Rule 421(b), 17 CFR § 230.421(b). Cf. *Gould v. American-Hawaiian Steamship Co.*, 535 F.2d 761 (3d Cir. 1976); *Kohn v. American Metal Climax, Inc.*, 322 F. Supp. 1331 (E.D. Pa. 1970).

⁸ See Securities Act section 2(1), 15 U.S.C. 77b(1); Exchange Act section 3(a)(10), 15 U.S.C. 78c(a)(10).

⁹ CFTC Regulation section 4.21, 17 CFR 4.21.

¹⁰ CFTC Regulation §§ 4.21(a)(4) and (a)(5), 17 CFR 4.21(a)(4), (a)(5).

¹¹ Section 40 of the Commodity Exchange Act, 7 U.S.C. 6a.

¹² See, e.g., Securities Act Section 17(a), 15 U.S.C. 77q(a); Exchange Act section 10(b), 15 U.S.C. 78j(b), and Exchange Act Rule 10b-5, 17 CFR 240.10b-5.

¹³ Registrants should be prepared to provide the Commission or its staff with information concerning the presentation of additional performance history. See Securities Act Rule 418, 17 CFR 230.418.

available.¹⁴ In addressing these issues, commentators should discuss specifically those factors that would cause a presentation covering more than three years to be useful or relevant to an investment decision in the currently offered commodity pool. The Commission also requests comment as to whether any presentation of prior performance is useful to investors in view of the general nonpredictability of trading results.

The CFTC's regulations require that the prior performance of the commodity pool operator and trading advisor be presented on at least a quarterly basis.¹⁵ In the Commission's view, performance disclosure on a monthly basis is generally more appropriate, particularly when such monthly performance is volatile. Moreover, to facilitate investor review and analysis of the prior performance presentations, a registrant, to the extent practicable, should present the prior performance tables for the commodity pool operator and the commodity trading advisor on a consistent periodic basis.

The CFTC's regulations permit prior performance disclosure on an individual or composite basis.¹⁶ Where a composite presentation is elected, separately captioned composites of previously traded public pools of the commodity pool operator and commodity trading advisor may be necessary to prevent the prospectus from being misleading, where the differences between the prior public pools' and private accounts' performance are material and are not otherwise clearly and concisely disclosed and explained in the text. Comment is requested as to whether there should be a separate presentation of prior public pools of the commodity pool operator and commodity trading advisor under all circumstances or whether an explanation of such differences in the text would be sufficient.

To enable an investor to evaluate prior performance presentations, the prior performance tables should be accompanied by appropriate textual disclosure regarding any material differences in investment objectives or structures between the commodity pools or trading accounts displayed in the prior performance tables and the

commodity pool being registered. For example, specific disclosure should be considered where the margin-to-equity ratio of historical commodity pools or trading accounts is materially different from the margin-to-equity ratio permitted in the currently offered commodity pool, or where there are material differences in money management strategies.

Similarly, to the extent an investor's understanding of the performance history would be enhanced by an explanation of significant factors that may have contributed to a materially favorable or unfavorable result during any quarterly or monthly measuring period, registrants should consider appropriate narrative disclosure. Such discussion could address, by way of example, the extent to which such prior performance was attributable to: (1) a particular successful or unsuccessful position or series of positions in one or a limited number of commodities, or was broadly based; (2) the movements of the commodity markets generally as measured by a broad based commonly used industry index; or (3) any material change in investment strategy or objectives. Commentators are requested to discuss any other factors that may be relevant to an understanding of the information contained in the prior performance tables.

III. Disclosure of Fees, Commission and Expenses

Consistent with the Commission's view, the practice is to supplement the prior performance disclosure for publicly offered commodity pools with a pro forma presentation of the performance history reflecting the brokerage commissions, incentive and management fees that would have been incurred if the commodity pools and trading accounts presented in the prior performance tables were subject to the same fees, and expenses as the commodity pool being registered instead of those fees and expenses actually paid by the commodity pools and trading accounts presented. When included, the pro forma presentation should disclose the actual and pro forma net return achieved by the commodity pool operator and commodity trading advisor for the last three years. Comment is requested as to whether this presentation and any other pro forma presentation based on the actual prior results may cause investors to place undue reliance on prior performance results as an accurate indicator of future performance.

Registrants also should include, in addition to a narrative description, a

tabular presentation located in the forefront of the prospectus that details the brokerage commissions, incentive, management and transactional fees, as well as any other expenses attributable to the commodity pool that will be paid directly or indirectly by investors.¹⁷ If any affiliate of the commodity pool operator will receive compensation in connection with the operation of the commodity pool, such affiliation and the amount of compensation should be clearly disclosed.

In order to facilitate analysis of the fees, brokerage commissions and other expenses to be charged to the commodity pool, registrants should consider additional disclosure regarding how much each unit's net asset value would have to increase in the first year, for the redemption value per unit, net of expenses attributable to the commodity pool, to equal the purchase price paid by investors for such unit, as well as a calculation of the redemption value per unit estimated prior to the commencement of operations. Comments are requested as to whether alternative disclosures would better enable prospective investors to assess the impact on their investment of the expenses to be charged to the commodity pool.

IV. Conclusion

While this release and the interpretive statement published simultaneously herewith by the CFTC represent the views of the respective agencies as to the preparation and disclosure of material information concerning commodity pools, nothing in the statements should be construed to alleviate the requirement of registrants to comply with all applicable disclosure requirements under the Securities Act, the Exchange Act, and the CEA.¹⁸ Attention also is directed to the antifraud provisions under both the Securities Act and the Exchange Act, which apply not only to statements made in filings with the Commission, but also to those made outside Commission filings.¹⁹ Registrants also

¹⁴ The Commission notes that the CFTC currently requires that registrants maintain all commodity pool and trading account records for at least five years. CFTC Regulation §§ 4.23 and 1.31, 17 CFR 4.23 and 1.31.

¹⁵ CFTC Regulation §§ 4.21(a)(4)(ii) and (a)(5)(ii), 17 CFR 4.21(a)(4)(ii) and (a)(5)(ii).

¹⁶ CFTC Regulation § 4.21(a)(4)(iv) and (a)(5)(iii), 17 CFR 4.21(a)(4)(iv) and (a)(5)(iii).

¹⁷ See also Regulation S-K, Item 501, 17 CFR 229.501, which requires the disclosure of the net proceeds to the issuer after deducting selling commissions; and Instruction 5 thereto, which requires footnote disclosure regarding other expenses of issuance and distribution, including organizational costs. 17 CFR 229.501, Instruction 5.

¹⁸ Registrants are specifically reminded of their obligation to include, in annual and quarterly reports filed under the Exchange Act, an analysis of the financial condition and results of operation for the commodity pool. See Item 303 of Regulation S-K, 17 CFR 229.303.

¹⁹ See *supra* note 12.

are reminded of the disclosure obligations promulgated by the CFTC.

List of Subjects in 17 CFR Parts 231 and 241

Reporting and record keeping requirements, securities.

Parts 231 and 241 of Title 17, Chapter II of the Code of Federal Regulations are amended by adding this Release No. 33-6815, and 34-26508 (February 1, 1989) to the list of interpretive releases.

By the Commission.

Jonathan G. Katz,
Secretary.

Dated: February 1, 1989.

[FR Doc. 89-2659 Filed 2-3-89; 8:45 am]

BILLING CODE 8010-01-M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Social Security Administration

20 CFR Part 404

[Regulation No. 4]

Federal Old-Age, Survivors, and Disability Insurance; Reduction Because of Entitlement to Other Benefits

AGENCY: Social Security Administration, HHS.

ACTION: Final rule.

SUMMARY: We are revising our rules in the case of a deceased insured individual who is simultaneously entitled to retirement and disability benefits. Specifically, this rule delineates those persons who may elect the type of benefit that will be the basis for monthly payments due to the insured before the insured's death. This rule corrects an anomaly which can result in a less advantageous entitlement or even an overpayment in certain instances.

DATE: These regulations are effective February 6, 1989.

FOR FURTHER INFORMATION CONTACT: Lawrence V. Dudar, Legal Assistant, Office of Regulations, Social Security Administration, 6401 Security Boulevard, Baltimore, MD 21235, (301) 965-1795.

SUPPLEMENTARY INFORMATION: We published these regulations as a Notice of Proposed Rulemaking (NPRM) on June 9, 1988 (see 53 FR 21687) with a 60-day period for public comment. No comments were received. As a result, we did not change any of the NPRM provisions for this final rule.

Section 404.407(c) of the regulations provides that in cases of simultaneous entitlement to retirement and disability insurance benefits (RIB/DIB), the

insured individual will receive the larger benefit unless he or she elects to receive the smaller. An insured individual age 62 to 65 may be entitled to a higher benefit if he or she receives the DIB. However, because of the way the maximum family benefits are computed, the auxiliaries who are entitled on the record may share a smaller maximum family benefit. Thus, an individual entitled to both RIB and DIB may elect the smaller of the two benefits in order to maximize total family benefits.

Generally, an individual must be alive when an application for benefits is filed. However, in the case of a deceased insured individual, an application for DIB may be filed by someone other than the insured individual within 3 months after the month of the insured individual's death.

In this regard, the regulations at § 404.612(d) provide that a person qualified to receive benefits due the deceased can file the application for DIB after the death of the insured individual. However, strict interpretation had been made of § 404.407(c) so that no one other than the insured individual (or proper applicant on behalf of a living insured individual) could make the election described in § 404.407(c). This could result in an overpayment if the insured individual was entitled to RIB during his or her lifetime, but died before his or her DIB claim was filed or adjudicated. Under current policy, overpayments in family maximum cases are created because even though the DIB monthly benefit is higher than the RIB monthly benefit, the RIB family maximum is higher than the DIB family maximum. The regulations do not currently provide for anyone other than the insured individual to exercise the § 404.407(c) election. A favorable adjudication of a DIB claim subsequent to the death of an insured individual who was receiving RIB payments could result in an overpayment for the period during which the insured was simultaneously entitled to both benefits. An overpayment can occur if the family maximum is lowered as a result of the DIB and no one is authorized to elect the RIB on behalf of the deceased insured.

We are amending § 404.407(c) to state that a person defined in § 404.612(a) (if the claimant is competent), (c) (if the claimant is incompetent), or (d) (if the insured individual is deceased) may make the election described in § 404.407(c).

Regulatory Procedures

Executive Order 12291

These regulations have been reviewed under Executive Order 12291 and the

Secretary has determined that this is not a major rule. Therefore, a regulatory impact analysis is not required. These provisions are not expected to have a cost impact on the economy of \$100 million or more in one year.

Paperwork Reduction Act

These final regulations impose no recordkeeping or reporting requirements requiring Office of Management and Budget clearance.

Regulatory Flexibility Act

The Secretary certifies that these final regulations will not have a significant economic impact on a substantial number of small entities because they affect only individuals. Therefore, a regulatory flexibility analysis as provided in Pub. L. 96-354, the Regulatory Flexibility Act, is not required.

(Catalog of Federal Domestic Assistance Programs No. 13.803, Social Security—Retirement Insurance.)

List of Subjects in 20 CFR Part 404

Administrative practice and procedure, Death benefits, Disability benefits, Old-Age, Survivors, and Disability Insurance.

Dated: December 13, 1988.

Dorcas R. Hardy,
Commissioner of Social Security.

Approved: December 30, 1988.

Otis R. Bowen,

Secretary of Health and Human Services.

Subpart E of Part 404 of Chapter III of Title 20 of the Code of Federal Regulations is amended as follows:

PART 404—[AMENDED]

1. The authority citation for Subpart E continues to read as follows:

Authority: Secs. 202, 203, 204 (a) and (e), 205(a), 222(b), 223(e), 224, 227, and 1102 of the Social Security Act; 42 U.S.C. 402, 403, 404 (a) and (e), 405(a), 422(b), 423(e), 424, 427, and 1302.

2. In § 404.407 paragraph (c) is revised to read as follows:

§ 404.407 Reduction because of entitlement to other benefits.

(c) *Entitlement to old-age insurance benefit and disability insurance benefit.* Any individual who is entitled for any month after August 1965 to both an old-age insurance benefit and a disability insurance benefit shall be entitled to only the larger of such benefits for such month, except that where the individual so elects, he or she shall instead be entitled to only the smaller of such

benefits for such month. Only a person defined in § 404.612 (a), (c), or (d) may make the above described election.

[FR Doc. 89-2638 Filed 2-3-89; 8:45 am]

BILLING CODE 4190-11-M

Food and Drug Administration

21 CFR Part 178

[Docket No. 88F-0054]

Indirect Food Additives; Polymers

AGENCY: Food and Drug Administration.

ACTION: Final rule.

SUMMARY: The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of hydrogen peroxide solution to sterilize food-contact surfaces prepared from poly-l-butene resins and butene/ethylene copolymers. This action is in response to a petition filed by Shell Oil Company.

DATES: Effective February 6, 1989; written objections and requests for a hearing by March 8, 1989.

ADDRESS: Written objections to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857.

FOR FURTHER INFORMATION CONTACT: Edward J. Machuga, Center for Food Safety and Applied Nutrition (HFF-335), Food and Drug Administration, 200 C Street SW., Washington, DC 20204, 202-472-5690.

SUPPLEMENTARY INFORMATION: In a notice published in the *Federal Register* of March 21, 1988 (53 FR 9145), FDA announced that a food additive petition (FAP 8B4062) had been filed by Shell Oil Co., Houston, TX 77210, proposing that § 178.1005 *Hydrogen peroxide solution* (21 CFR 178.1005) be amended to provide for the safe use of hydrogen peroxide solution to sterilize food-contact surfaces prepared from poly-l-butene resins and butene/ethylene copolymers complying with § 177.1570.

FDA has evaluated the data in the petition and other relevant material and concludes that the proposed food additive use is safe, and that 21 CFR 178.1005(e)(1) should be amended as set forth below.

In accordance with § 171.1(h) (21 CFR 171.1(h)), the petition and the documents that FDA considered and relied upon in reaching its decision to approve the petition are available for inspection at the Center for Food Safety and Applied Nutrition by appointment with the information contact person listed above.

As provided in 21 CFR 171.1(h), the agency will delete from the documents any materials that are not available for public disclosure before making the documents available for inspection.

The agency has carefully considered the potential environmental effects of this action. FDA has concluded that the action will not have a significant impact on the human environment, and that an environmental impact statement is not required. The agency's finding of no significant impact and the evidence supporting that finding, contained in an environmental assessment, may be seen in the Dockets Management Branch (address above) between 9 a.m. and 4 p.m., Monday through Friday.

Any person who will be adversely affected by this regulation may at any time on or before March 8, 1989, file with the Dockets Management Branch (address above) written objections thereto. Each objection shall be separately numbered, and each numbered objection shall specify with particularity the provisions of the regulation to which objection is made and the grounds for the objection. Each numbered objection on which a hearing is requested shall specifically so state. Failure to request a hearing for any particular objection shall constitute a waiver of the right to a hearing on that objection. Each numbered objection for which a hearing is requested shall include a detailed description and analysis of the specific factual information intended to be presented in support of the objection in the event that a hearing is held. Failure to include such a description and analysis for any particular objection shall constitute a waiver of the right to a hearing on the objection. Three copies of all documents shall be submitted and shall be identified with the docket number found in brackets in the heading of this document. Any objections received in response to the regulation may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday.

List of Subjects in 21 CFR Part 178

Food additives, Food packaging, Sanitizing solutions.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs and redelegated to the Director, Center for Food Safety and Applied Nutrition, Part 178 is amended as follows:

PART 178—INDIRECT FOOD ADDITIVES, ADJUVANTS, PRODUCTION AIDS, AND SANITIZERS

1. The authority citation for 21 CFR Part 178 continues to read as follows:

Authority: Secs. 201(s), 409, 72 Stat. 1784-1786 as amended (21 U.S.C. 321(s), 348); 21 CFR 5.10 and 5.61.

2. Section 178.1005 is amended in paragraph (e)(1) by alphabetically adding a new entry in the table to read as follows:

§ 178.1005 Hydrogen peroxide solution.

Substances	Limitations
Poly-l-butene resins and butene/ethylene copolymers.	Complying with § 177.1570 of this chapter.

Dated: January 27, 1989.

Richard J. Ronk,

Acting Director, Center for Food Safety and Applied Nutrition.

[FR Doc. 89-2668 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-01-M

DEPARTMENT OF DEFENSE

Office of the Secretary

32 CFR Part 199

[DoD 6010.8-R Amdt. No. 19]

Civilian Health and Medical Program of the Uniformed Services (CHAMPUS); CHAMPUS Coverage for Biofeedback

AGENCY: Office of the Secretary, DoD.

ACTION: Final amendment of rule.

SUMMARY: This final rule amends DoD 6010.8-R (32 CFR Part 199) by extending benefits for biofeedback therapy. This amendment provides coverage for biofeedback therapy when used as a treatment modality for certain medical conditions. This amendment offers coverage for services now specifically excluded from CHAMPUS cost-sharing.

EFFECTIVE DATE: February 6, 1989.

FOR FURTHER INFORMATION CONTACT: Judith A. Carroll, Office of Program Development, OCHAMPUS, telephone (303) 361-3521.

SUPPLEMENTARY INFORMATION: In FR Doc. 77-7834, appearing in the *Federal Register* on April 4, 1977 (42 FR 17972),

the Office of the Secretary of Defense published its regulation, DoD 6010.8-R, "Implementation of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)," as Part 199 of this title. 32 CFR Part 199 (DoD 6010.8-R) was reissued in the *Federal Register* on July 1, 1986 (51 FR 24008).

In FR Doc. 87-18575 appearing in the *Federal Register* on August 14, 1987 (52 FR 30391), the Office of the Secretary of Defense published for public comment a notice of proposed rulemaking regarding coverage for biofeedback therapy. The following summarizes the comments received and the actions we have taken based on these comments.

Discussion of Comments

The comments received in response to the proposed rule to offer benefits for biofeedback therapy were generally supportive of the decision to expand coverage to include benefits for biofeedback therapy as proposed. A summary of the comments and our responses to them are listed below.

A. Provider Requirements

Comment: Several commentors recommended that the requirement for physician referral be deleted, while other commentors supported this requirement.

Response: We feel that physician referral is essential for the diagnoses listed as coverable to ensure that a patient be adequately evaluated, diagnosed and treated before initiation of biofeedback therapy.

Comment: Several commentors recommended that the requirement for physician supervision be deleted or clarified to read as follows "a physician must continue to be involved in the care of and medically responsible for the patient," or "treatment should be reviewed periodically by a physician to assure maximum patient benefit."

Response: We accept the commentors' arguments for deletion and have deleted this requirement in the final rule.

Comments: Several commentors recommended that only individuals who have some form of recognized biofeedback certification be approved as authorized providers of biofeedback services.

Response: We do not find the arguments for this requirement persuasive. We have determined that those individuals practicing within the scope of their licensure and meeting the CHAMPUS criteria of authorized provider are qualified to provide otherwise covered biofeedback therapy.

B. Benefits Provided

Comment: Several commentors objected to the expansion of benefits to include coverage for biofeedback services since it would result in an increase in program expenditures.

Response: While we do agree that the addition of biofeedback as a benefit may initially increase program expenditure, we feel that the initial increase may be offset to a degree by a decrease in other program areas such as prescription drugs, physical therapy, etc. We feel program expenditures are further kept to a minimum since cost-sharing is limited to specific diagnoses, and a maximum yearly limit of 20 sessions.

Comment: Several commentors felt the requirement for documentation that other forms of conventional treatment have been unsuccessful prior to the initiation of biofeedback therapy was too restrictive and could easily be misinterpreted to exclude coverage for biofeedback used in combination with other medical treatment modalities. The commentors recommended this requirement be clarified to read as follows "that other forms of conventional treatment are or have been insufficient, or their omission in a treatment program can be adequately justified."

Response: We agree clarification is needed since it is not our intent to exclude biofeedback therapy when used as an adjunctive treatment with conventional medical treatment. However, considering our list of covered diagnoses, we do feel that other forms of conventional treatment should be attempted and not omitted prior to the initiation of biofeedback therapy. Therefore, the following compromising language has been included in the final rule, "documentation that their present condition is not responding to or no longer responds to other forms of conventional treatment."

Comment: Several commentors objected to the exclusion of all psychosomatic disorders on the basis that all diagnoses have psychosomatic aspects and, therefore, would be excluded from coverage.

Response: We do not agree. The term psychosomatic is defined as having bodily symptoms of psychic, emotional, or mental origin. By using this term, we are clearly indicating our intent to prohibit cost-sharing of biofeedback therapy as treatment of conditions associated solely with mental or emotional origin.

Comment: Several commentors felt that the list of covered diagnoses was too limiting and should be expanded.

Response: We did not find their arguments persuasive. Our benefit design allows far more comprehensive coverage than currently offered by other major third party payors.

As part of the rulemaking process, CHAMPUS is required by law to consult with specific government agencies who have categories of beneficiaries eligible to receive CHAMPUS benefits. Comments received from these government agencies during this coordination process are given serious consideration in forming the design of the final CHAMPUS rule. During this coordination on the proposed rule on biofeedback, the Department of Health and Human Services (DHHS) objected to some of the diagnoses proposed for coverage. Specifically, DHHS felt that biofeedback was safe and efficacious as adjunctive treatment for Raynaud's Syndrome and certain spastic motor conditions. However, they felt that medical literature was not conclusive in establishing the efficacy of biofeedback therapy for vascular and tension headaches and mild hypertension. Additionally, as further clarification, the Office of Health Technology Assessment within DHHS indicated that the current Medicare coverage policy on biofeedback was well supported by medical literature. Wishing to assure safety and efficacy for those CHAMPUS beneficiaries who may require biofeedback treatment, we have modified the final rule to incorporate the recommendations of DHHS. Adoption of the current Medicare coverage policy and DHHS's recommendations will provide coverage for several of the specific conditions listed in the proposed rule (e.g., stroke, fecal incontinence, and torticollis) and will exclude coverage for those conditions not supported by medical literature (e.g., vascular and tension headaches and mild hypertension).

As stated in the notice of proposed rulemaking § 199.4, paragraph (g)(59) Part 199 specifically excludes biofeedback therapy from the CHAMPUS Basic Program. The basis for this exclusion was that this treatment modality was primarily experimental and not generally accepted by the professional medical community.

In the Senate Appropriations Committee Report on the Department of Defense Appropriations Act for 1979, OCHAMPUS was requested to "conduct a study and work with the Biofeedback Society of America (or other appropriate representatives of this clinical technique) to delineate the conditions under which biofeedback might be

acceptable as a health care service that can be reimbursed by CHAMPUS."

Following this directive, OCHAMPUS has numerous meetings with DoD officials, OCHAMPUS personnel, and members of the Biofeedback Society of America. The information obtained at these meetings and the input received from other professional sources, led OCHAMPUS to propose an amendment to the Regulation in 1980 which allowed limited coverage for biofeedback therapy. However, the proposed amendment was disapproved because of insufficient evidence establishing clinical efficacy for biofeedback services.

Each year, since that time, the Senate Appropriations Committee has expressed interest on OCHAMPUS' progress toward the establishment of limited biofeedback benefits. In 1983, OCHAMPUS was directed by Congress to report on when OCHAMPUS would establish biofeedback therapy as a benefit. Our response to this Congressional directive indicated that before OCHAMPUS could establish benefits for limited biofeedback therapy further examination of cost-savings was required. Additionally, we reported that we could only support the establishment of biofeedback services when there was clear evidence that it would not increase program costs. Our report further offered a solution of initiating a demonstration project to determine both clinical and cost-effectiveness of biofeedback services. Following this report, The Senate Appropriations Committee Report No. 98-636 of the DoD Appropriations Act of 1985, expressed an interest in being apprised of the results of the OCHAMPUS biofeedback demonstration project.

Acting on the expressed interest of The Senate Appropriations Committee Report, OCHAMPUS determined that an evaluation study of biofeedback by an independent contractor was needed as the first step in designing and implementing a demonstration project. In 1985, a competitive contract was awarded to evaluate the clinical and cost-effectiveness of biofeedback therapy and provide recommendations for policy options.

The results of the evaluation study indicated that biofeedback literature now supports the cost-effectiveness and efficacy of biofeedback therapy for treatment of fecal incontinence, Raynaud's syndrome, hypertension, chronic migraine, and tension headaches and neuromuscular rehabilitation under certain conditions.

The recommendations for CHAMPUS demonstration benefit policy options were: To provide coverage as a primary

modality for fecal incontinence; to provide coverage as an adjunct modality for Raynaud's syndrome, hypertension, chronic migraine and tension headaches with coverage limitations on the number of visits and costs per visit and treatment for specific diagnosis. Additionally, coverage should be only for treatment administered by or under the supervision of a physician or prescribed by one. The study recommended that the demonstration test location and control location match as closely as possible with respect to medical care available from a Military Treatment Facility, CHAMPUS-eligible population demographics, and medical doctor-to-certified therapist ratio.

The study further reported that the demand for biofeedback services could not be determined because no biofeedback patient demographic, utilization and cost data were available. As a result, no reliable analysis of coverage options was possible.

Following a review of the evaluation study and all available research material, OCHAMPUS has decided not to initiate a demonstration project, since there is sufficient information which supports biofeedback as an effective treatment modality recognized by the medical community as the standard of care for certain medical conditions. Additionally, we feel the cost involved in the implementation and evaluation of a biofeedback demonstration project can better be applied to establishing biofeedback therapy as a benefit.

Our final rule incorporates the recommendations contained in the evaluation study on benefit options, public comments, and follows Medicare's current coverage policy including their exclusion of biofeedback treatment for psychosomatic disorders. Coverage is limited to the treatment of specific medical conditions for which biofeedback is found to be beneficial and cost-effective.

This final amendment offers coverage for services now specifically excluded from CHAMPUS cost-sharing. It is an enhancement of military benefits.

Section 605(b) of the Regulatory Flexibility Act of 1980 (Pub. L. 96-354) requires that each federal agency prepare and make available for public comment, a regulatory flexibility analysis when the agency issues regulations which would have a significant impact on a substantial number of small entities. The Secretary certifies, pursuant to section 605(b) of Title 5, United States Code, enacted by the Regulatory Flexibility Act (Pub. L. 96-354), that this regulation amendment will not have a significant economic impact on a substantial number of small

businesses, organizations, or government jurisdictions. The final rule is expected to have the impact of enhancing the scope of CHAMPUS benefits for biofeedback services. It will not involve any significant burden on OCHAMPUS beneficiaries or providers of biofeedback services. It is not therefore, a "major rule" under Executive Order 12291.

List of Subjects in 32 CFR Part 199

Claims, Handicapped, Health insurance, Military personnel.

Accordingly, 32 CFR Part 199 is amended as follows:

PART 199—[AMENDED]

1. The authority citation for Part 199 continues to read as follows:

Authority: 10 U.S.C. 1079, 1086, 5 U.S.C. 301.

2. Section 199.4 is amended by adding a new paragraph (e)(17) and removing and reserving paragraph (g)(59):

§ 199.4 Basic program benefits.

* * *

(e) * * *

(17) Biofeedback Therapy.

Biofeedback therapy is a technique by which a person is taught to exercise control over a physiologic process occurring within the body. By using modern biomedical instruments the patient learns how a specific physiologic system within his body operates and how to modify the performance of this particular system.

(i) *Benefits Provided.* CHAMPUS benefits are payable for services and supplies in connection with electrothermal, electromyograph and electrodermal biofeedback therapy when there is documentation that the patient has undergone an appropriate medical evaluation, that their present condition is not responding to or no longer responds to other forms of conventional treatment, and only when provided as treatment for the following conditions:

(A) Adjunctive treatment for Raynaud's Syndrome.

(B) Adjunctive treatment for muscle re-education of specific muscle groups or for treating pathological muscle abnormalities of spasticity, or incapacitating muscle spasm or weakness.

(ii) *Limitations.* Payable benefits include initial intake evaluation. Treatment following the initial intake evaluation is limited to a maximum of 20 inpatient and outpatient biofeedback treatments per calendar year.

(iii) *Exclusions.* Benefits are excluded for biofeedback therapy for the

treatment of ordinary muscle tension states or for psychosomatic conditions. Benefits are also excluded for the rental or purchase of biofeedback equipment.

(iv) *Provider Requirements.* A provider of biofeedback therapy must be a CHAMPUS-authorized provider. (Refer to § 199.6, "Authorized Providers"). If biofeedback treatment is provided by other than a physician, the patient must be referred by a physician.

(v) *Implementation Guidelines.* The Director of OCHAMPUS shall issue guidelines as are necessary to implement the provision of this paragraph.

February 1, 1989.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 89-2660 Filed 2-3-89; 8:45 am]

BILLING CODE 3810-01-M

32 CFR Part 351

[DoD Directive 5134.3]

Authority Delegation; Director of Defense Research and Engineering (DDR&E)

AGENCY: Department of Defense.

ACTION: Final rule.

SUMMARY: The Director of Defense Research and Engineering (DDR&E), has been established pursuant to the provisions of Title 10, United States Code. The DDR&E shall perform duties as the principal staff assistant and advisor to the Under Secretary of Defense (Acquisition) for DoD scientific and technical matters, basic and applied research, and the development of weapon systems. This document conforms to current organizational arrangements within the Office of the Under Secretary of Defense (Acquisition).

EFFECTIVE DATE: January 9, 1989.

FOR FURTHER INFORMATION CONTACT: Mr. R. Kennedy, Office of the Director for Administration and Management (Organizational and Management Planning), the Pentagon, Washington, DC 20301, telephone 202-697-1142.

SUPPLEMENTARY INFORMATION:

List of Subjects in 32 CFR Part 351

Organizational and function (government agencies).

Accordingly, 32 CFR Part 351 is revised as follows:

PART 351—DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING (DDR&E)

Sec.

351.1 Purpose.

351.2 Responsibilities.

351.3 Functions.

351.4 Relationships.

351.5 Authorities.

Authority: 10 U.S.C. 135.

§ 351.1 Purpose.

Pursuant to the provisions of Title 10, U.S.C. 135, this Part prescribes the responsibilities, functions, relationships, and authorities of the Director of Defense Research and Engineering (DDR&E). It also revises 32 CFR Part 351.

§ 351.2 Responsibilities.

The DDR&E is the principal staff assistant and advisor to the Under Secretary of Defense (Acquisition) (USD(A)) for DoD scientific and technical matters, basic and applied research, and the development of weapon systems. For each assigned area, the DDR&E shall:

(a) Conduct analyses, develop policies, provide advice, make recommendations, and issue guidance on DoD plans and programs.

(b) Develop systems and standards for the administration and management of approved plans and programs.

(c) Initiate programs, actions, and taskings to ensure adherence to DoD policies and national security objectives, and to ensure that programs are designed to accommodate operational requirements.

(d) Review and evaluate programs for carrying out approved policies and standards.

(e) Inform appropriate organizations and personnel of new and significant trends or initiatives.

(f) Review proposed resource programs, formulate budget estimates, recommend resource allocations, and monitor the implementation of approved programs.

(g) Participate in those planning, programming, and budgeting activities that relate to DDR&E responsibilities.

(h) Review and evaluate recommendations on requirements and priorities.

(i) Promote coordination, cooperation, and mutual understanding within the Department of Defense and between the Department of Defense and other Federal Agencies and the civilian community.

(j) Serve on boards, committees, and other groups pertaining to the DDR&E's

functional areas, and represent the Secretary of Defense and the USD(A) on DDR&E matters outside the Department of Defense.

(k) Perform such other duties as the Secretary of Defense or the USD(A) may prescribe.

§ 351.3 Functions.

The DDR&E shall carry out the responsibilities in § 351.2 for the following functional areas:

(a) Basic and applied research and advanced technology, design and engineering, and the development of weapons systems.

(b) Tactical warfare programs activities related to research and development (R&D).

(c) Strategic and theater nuclear forces programs activities related to R&D.

(d) Development test and evaluation (T&E) in accordance with DoD Directive 5000.3¹ to include ensuring that the T&E program is sufficient to support milestone decisions.

(e) Scientific and technical information.

(f) Assignment and reassignment of research and engineering responsibility for systems.

(g) Research interchange with friendly and allied nations, in conjunction with the Under Secretary of Defense (Policy) (USD(P)).

(h) Contract placement and administration for R&D programs.

(i) Oversight of Federally Funded R&D centers.

(j) Atomic energy for defense as well as chemical warfare and biological defense plans and programs.

(k) Chairmanship of the Nuclear Weapons Council.

(l) Such other areas as the Secretary of Defense or the USD(A) may prescribe.

§ 351.4 Relationships.

(a) The DDR&E shall perform duties under the direction, authority, and control of the USD(A) consistent with 32 CFR Part 382.

(b) In the performance of assigned functions and responsibilities, the DDR&E shall:

(1) Use existing facilities and services, whenever practicable, to achieve maximum efficiency and economy.

(2) Coordinate and exchange information with other DoD organizations having collateral or related functions.

¹ Copies may be obtained if needed, from the U.S. Naval Publications and forms center, Attn: Code 1062, 5801 Tabor Avenue, Philadelphia, PA 19120.

(c) DoD Components shall coordinate with the DDR&E on all matters concerning the functions in § 351.3.

§ 351.5 Authorities.

Pursuant to the authority vested in the Secretary of Defense, and subject to the direction, authority, and control of the USD(A), and in accordance with DoD policies, Directives, and Instructions, the DDR&E or, in the absence of the DDR&E, the person acting for the DDR&E, is hereby delegated authority to:

(a) Issue DoD Instructions, DoD publications, and one-time directive-type memoranda that carry out policies approved by the Secretary of Defense in assigned fields of responsibility, consistent with DoD 5025.1-M.

Instructions to the Military Departments shall be issued through the Secretaries of those Departments or their designees. Instructions to Unified and Specified Commands shall be issued through the Chairman of the Joint Chiefs of Staff (CJCS).

(b) Obtain such reports, information, advice, and assistance, consistent with the policies and criteria of DoD Directive 7750.5², as the DDR&E deems necessary.

(c) Communicate directly with heads of DoD Components. Communications with the Unified and Specified Commands shall be coordinated through the CJCS.

(d) Establish arrangements for DoD participation in those nondefense governmental programs for which the DDR&E has been assigned primary cognizance.

(e) Approve, modify, or disapprove R&D, and projects of the Military Departments and other DoD Agencies in assigned fields.

(f) Communicate with other Government Agencies, representatives of the legislative branch, and members of the public, as appropriate, in carrying out assigned functions.

(g) Make determinations and decisions regarding scientific and technical matters, basic and applied research, and the development of weapon systems.

(h) Make the determination required by Title 50, United States Code, section 1512(1), concerning transportation or testing of any lethal chemical or any biological warfare agent.

(i) Submit the annual report to Congress on funds obligated in the chemical warfare and biological defense

research programs required by Title 50, United States Code, section 1511.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

January 26, 1989.

[FR Doc. 89-2248 Filed 2-3-89; 8:45 am]

BILLING CODE 3810-01-M

DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Parts 173 and 174

[CGD 82-015]

RIN 2115-AA82

Casualty and Accident Reporting; Accident Report Threshold

AGENCY: Coast Guard, DOT.

ACTION: Final rule.

SUMMARY: The Coast Guard is raising the reporting requirement threshold to \$500 for vessel accidents involving only property damage. Because of inflation since 1979, the existing \$200 threshold has resulted in the submission of increasing numbers of accident reports for minor incidents. These reports tend to distort the statistical base for the Boating Safety Program. These additional accident reports, which were not required to be submitted in 1979, have also increased the administrative burden on the Coast Guard and the reporting burden on the boating public. Raising the accident reporting threshold to \$500 will compensate for the effects of inflation, provide for a consistent statistical base and reduce the administrative burden on the Coast Guard and the reporting burden on the boating public. State casualty reporting systems may continue to require submission of accident reports at a lower threshold than that required by the Coast Guard.

EFFECTIVE DATE: March 8, 1989.

FOR FURTHER INFORMATION CONTACT: Mr. Carlton Perry, Office of Navigation Safety and Waterway Services (G-NAB), U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593-0001, (202) 267-0979, between 8 a.m. and 3 p.m., Monday through Friday, except holidays.

SUPPLEMENTARY INFORMATION: Sections 173.55 and 174.101 of Title 33 Code of Federal Regulations, require boaters to submit a casualty or accident report for accidents involving fatalities, injuries requiring medical treatment beyond first aid, property damage more than \$200, or complete loss of vessel. This casualty

reporting system has helped to achieve uniform reporting of boating accident information and has provided a statistical base to evaluate the need for safety standards and to help analyze program effectiveness.

In 1972 the original reporting threshold for vessel accidents resulting in only property damage was \$100. In 1979, the effects of inflation on the original figure required that the reporting threshold be raised to \$200. This adjustment served to correct the distortion on the year to year data in the statistical base and also reduced the number of reports required to be filed. Although no other adjustments have been made since 1979, inflation has increased the cost of minor repairs to the point that previously nonreportable minor damage now exceeds the threshold figure. The resulting reports on these minor repairs tend to distort the year to year comparability of the statistical data base on boating accidents.

The Coast Guard issued a notice of proposed rulemaking on April 25, 1988, (53 FR 13417) proposing to raise the accident reporting threshold to \$400 for 1989 to compensate for the effects of inflationary increases in repair costs. The original comment period was extended to July 25, 1988, by a notice issued in the *Federal Register* on July 10, 1988.

Any reporting threshold figure will, over time, require some adjustment. The Coast Guard plans to review the reporting threshold annually, applying the Gross National Product (GNP) deflator published by the Department of Commerce. When, during an annual review, it is determined that an adjustment of the reporting threshold figure is appropriate, the Coast Guard will initiate rulemaking to raise the threshold in \$100 increments.

Applying the GNP deflator to the original \$100 threshold published in 1972, and rounding to the nearest hundred dollars, yielded equivalent reporting threshold figures of \$200 for 1978, \$300 for 1981, \$400 for 1985 and \$500 for 1990 (projected). Although the GNP index formula does not justify a \$500 threshold until 1990, establishing the higher threshold now would eliminate the need to initiate another rulemaking project soon after establishing a \$400 threshold. The \$500 threshold amount will skew the data base only slightly (4%) until inflation catches up. The Coast Guard considers this slight distorting effect on the data base to be within acceptable limits until inflation catches up to the early adjustment. The Coast Guard is, therefore, adjusting the reporting

² See footnote 1 to 5351.3(d).

threshold to compensate for the effects of inflation, by raising the threshold figure to \$500.

Drafting Information: The principal persons involved in drafting this rulemaking are Carlton Perry, Project Manager and Christena Green, Project Attorney.

A regulatory information number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

Discussion of Comments: A total of 30 comments were received in response to the NPRM by the close of the extended comment period. One comment received on July 26 has also been considered in this rulemaking. The comments came from the following groups in the numbers noted:

- 11 Recreational Boaters
- 3 Marine Surveyors
- 3 Boating Insurance Companies
- 8 State Boating Law Administrators
- 2 Local Boating Law Enforcement
- 1 National Boating Interest
- 3 Individual Interests

In addition to proposing the increased accident reporting threshold in the NPRM, the Coast Guard asked a number of specific questions related to raising the appropriate level of reporting threshold; basing reporting requirements on types of damage instead of dollar amounts; impacts of receiving less information or data if the reporting threshold were raised above \$400; and what measures could be taken to improve boater compliance with accident reporting requirements. A summary of the responses to each question in the NPRM is set out below:

Question 1. Should the reporting threshold be raised to \$400 now for CY 1989, to preserve a comparable data base, and be raised to \$500 for CY 1990 to maintain the data base, if still supported by the indexing formula?

Six comments opposed raising the reporting threshold to \$400. Two commenters felt the increase would cause a sudden drop in the number of accidents required to be reported and that valuable information would be lost. Two comments suggested that the present threshold was similar to that for motor vehicles and would ensure collection of information which could identify the causes of accidents. Seven comments supported raising the reporting threshold to \$400. One commenter supported the proposal to allow the states to retain a lower

reporting threshold, and one commenter suggested requiring boaters to report all accidents, but have the states forward to the Coast Guard only reports of damage over \$400.

Question 2. Should the reporting threshold be raised to \$500 now for CY 1989, to avoid repeating the regulatory process for CY 1990?

Three comments supported raising the reporting threshold to \$500 now because the cost to repair very minor damages generally exceeds \$500 and the increased threshold would save paperwork expense immediately. The National Association of State Boating Law Administrators also recommended allowing states to use a lower reporting threshold if they wish.

Question 3. Should the reporting threshold be set at some higher level between \$600 and \$1,000, establishing a new base on which to apply the indexing formula?

Four comments favored a reporting threshold over \$500, at levels ranging from \$600, to \$3,000. One commenter suggested \$1,000 to \$1,500 because many insurance deductibles are \$1,000 or more and people will report damage to an insurance company before reporting it to the Coast Guard. One suggested \$2,000 to reduce the volume of reported accidents. Another believed \$3,000 would result in more reportable accidents actually being reported.

Question 4. Should the reporting dollar threshold be replaced by the specific types of damage which must be reported, regardless of dollar value of the property damage?

Two comments suggested requiring reports on specific types of accidents instead of using a dollar reporting threshold. Both commenters suggested requiring reports on collisions with other vessels and fixed objects. One also listed falls overboard, capsizings, swampings, sinkings, struck by boat or propeller, fire and/or explosions, and property damage exceeding \$500 for all other accidents, because these types of accidents need to be better analyzed to reduce fatalities and injuries.

Question 5. For what purposes are the Coast Guard statistics on recreational boating property damage used?

No comment addressed this question.

Question 6. What impacts, if any, would result from the loss of information, if a reporting threshold above \$400 were established?

One comment stated there would be no impact because records of insurance companies could be examined, if necessary, to check on statistics on accidents lower than the reporting threshold.

Discussion of Rulemaking

The Coast Guard has decided to raise the accident reporting threshold to \$500. The Coast Guard intends to conduct an annual review of the reporting threshold and raise the reporting threshold in \$100 increments when appropriate, to keep reporting data comparable from year to year and avoid a "sudden drop" in data.

This rulemaking does not require the states to raise their reporting thresholds or change their reporting procedures. States may set or keep a lower reporting threshold, if appropriate for their state.

The Coast Guard does not find an adequate basis to substitute categories of accidents for the dollar threshold amount. The Coast Guard also decided not to raise the reporting threshold to \$600, or greater, for 1989 because it would create a new data base excluding a segment of accident reports which have been part of our data base since the reporting system was established in 1972. These reports are used in determining the need to establish or change electrical, fuel and ventilation standards for recreational boats. Raising the dollar amount of the reporting threshold to \$500 will adequately exclude accident reports of cosmetic or minor damage which are of little statistical value in the accident reporting data base, while continuing to require reporting of accidents equivalent to those required in 1972. The consequent reduction in the number of required reports will relieve the burden on the boating public and on the Coast Guard of processing reports which are not essential to the accident reporting data base.

Discussion of Improving Boater Compliance in Reporting Accidents

The notice of proposed rulemaking also requested public comment on any measures that could be taken to improve boaters' compliance with requirements for reporting property damage. Twenty comments discussed this issue. Five of the comments suggested improving public relations or boater education on reporting requirements, two emphasizing Coast Guard Auxiliary education and one urging mandatory boater education or licensing. Three suggested insurance companies could provide accident reporting forms, and two suggested an insurance claim not be paid until a report is filed. One suggested that insurance companies report to the Coast Guard all claims over \$400, and one suggested requiring marine repair shops to file a report if they make any repairs to boat damage exceeding \$400. Four commenters emphasized a need for

better access to forms, one suggesting that states mail forms with boat registration information. Two urged simplifying the reports and reporting procedures.

The Coast Guard is working with the states to improve access to accident reporting forms and requirements, to increase efforts in boater education and public relations, and to provide accident reporting forms and reporting requirements to boating insurance companies. The Coast Guard will continue to review these and any additional suggestions, and, where appropriate, initiate rulemaking or develop nonregulatory measures to improve boater compliance with accident reporting requirements.

The National Boating Safety Advisory Council and the National Association of State Boating Law Administrators have been consulted and their opinions and advice have been considered in the formulation of this rule. The transcripts of the proceedings of the National Boating Safety Advisory Council at which this rule was discussed are available for examination in Room 4306, U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593-0001. The minutes of the meetings are available from the Executive Director, National Boating Safety Advisory Council, c/o Commandant (G-NAB), U.S. Coast Guard, 2100 Second Street SW., Washington, DC 20593-0001.

Regulatory Evaluation

This rulemaking is considered nonmajor under Executive Order No. 12291 and nonsignificant under Department of Transportation regulatory policies and procedures (44 FR 11034; February 26, 1979). This amendment is being made to adjust accident reporting criterion and does not reflect interpretations of statutory language. The Coast Guard collects and analyzes accident data on a calendar year basis and the intent of this rulemaking is to keep accident data comparable from year to year. The effect of the rulemaking is to reduce the number of reports being submitted for accidents of decreasing seriousness due to economic inflation. Raising the reporting criterion from "more than \$200" to "more than \$500" will reduce the number of reports presently required because minor cosmetic damage repair costs exceed the reporting threshold. The adequacy of this alternative and method of annual application of GNP deflators to the reporting threshold will be reconsidered during a review of all Coast Guard recreational boating safety regulations scheduled for May 1991. For reasons, the economic impact of the rulemaking has

been found to be so minimal that further evaluation is unnecessary. Since the impact of the rulemaking is expected to be minimal, the agency certifies that it will not have a significant economic impact on a substantial number of small entities.

Federalism

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that this rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

List of Subjects in 33 CFR Parts 173 and 174

Marine safety, Reporting requirements.

In consideration of the foregoing, the Coast Guard is amending Parts 173 and 174 of Title 33, Code of Federal Regulations to read as follows:

PART 173—[AMENDED]

1. The authority for Part 173 is revised to read as follows:

Authority: 46 U.S.C. 6101, 12302; 49 CFR 1.46.

2. Section 173.55 is amended by revising paragraph (a)(3) to read as follows:

§ 173.55 Report of casualty or accident.

(a) * * *

(3) Damage to the vessel and other property totals more than \$500 or there is a complete loss of the vessel; or
* * * * *

PART 174—[AMENDED]

3. The authority for Part 174 is revised to read as follows:

Authority: 46 U.S.C. 6101, 12302; 49 CFR 1.46.

4. Section 174.101 is amended by revising paragraph (b) to read as follows:

§ 174.101 Applicability of State casualty reporting system.

* * * * *

(b) The State casualty reporting system may also require vessel casualty or accident reports for property damage in amounts less than that required under § 173.55 of this chapter.
* * * * *

Dated: February 1, 1989.

R.T. Nelson

Rear Admiral, U.S. Coast Guard Chief, Office of Navigation Safety and Waterway Services.
[FR. Doc. 89-2712 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-14-M

VETERANS ADMINISTRATION

38 CFR Parts 2, 3, 14, and 19

General Counsel Opinions

AGENCY: Veterans Administration.

ACTION: Final rules.

SUMMARY: The Veterans Administration (VA) is issuing final regulatory amendments governing legal opinions of the VA General Counsel. These amendments include delegation of authority to the General Counsel to designate certain legal opinions involving veterans' benefits under laws administered by the VA as precedential. The amendments also authorize the General Counsel to issue legal opinions involving veterans' benefits under laws administered by the VA which are binding on Agency officials with respect to the matter at issue, but not precedential. Opinions of this type which are designated as "advisory only" will not have such binding effect. The regulatory action is intended to assist VA officials, benefit claimants and claimants' representatives by defining the status and effect of particular classes of General Counsel opinions.

EFFECTIVE DATE: These rules are effective March 8, 1989.

FOR FURTHER INFORMATION CONTACT:

Andrew J. Mullen, Deputy Assistant General Counsel, Office of the General Counsel, Veterans Administration, 810 Vermont Avenue NW., Washington, DC 20420 (202) 233-2440.

SUPPLEMENTARY INFORMATION: On March 15, 1988, the VA published in the *Federal Register* (53 FR 8471) a notice proposing amendment of Parts 2, 3, and 14 of Title 38, Code of Federal Regulations, to define the status and effect of certain legal opinions of the General Counsel. The VA proposed adding a specific delegation of authority in Part 2 of Title 38 under which the General Counsel would be authorized to designate, in accordance with standards established in an amended § 14.507(b), certain legal opinions as having precedential effect in Agency adjudications and appellate reviews of benefit claims under laws administered by the VA. The Agency also proposed amendment of § 14.507 to provide that a written legal opinion of the General

Counsel, as defined in a new paragraph (c) of that section, would be conclusive as to all Agency officials and employees with respect to the matter at issue unless designated "advisory only" or superseded by a change in statute or regulation or by a subsequent opinion. Finally, the VA proposed modification of § 3.101, governing adjudications, to recognize the General Counsel's authority to issue precedent opinions. Interested persons were given until April 14, 1988, to submit written comments, suggestions, or objections concerning the proposed regulatory action.

The VA received three comments on the proposed rules, two from congressional sources and one from a veterans' service organization. The comments were in general agreement as to the need to clarify the status and effect of General Counsel opinions and offered several suggestions for changes in the proposed amendments.

Two commenters asserted that the VA is required by the Freedom of Information Act, 5 U.S.C. 552, to publish all precedent opinions of the General Counsel in the *Federal Register*. Section 552(a)(1)(D) of Title 5, United States Code, provides for publication in the *Federal Register*, for the guidance of the public, of "interpretations of general applicability formulated and adopted by the agency." Under the terms of section 552(a)(1), a person may not be required to resort to or be adversely affected by matter required to be published in the *Federal Register* and not so published, except to the extent the person has actual and timely notice of its contents.

The VA concludes that opinions designated as precedential pursuant to new 38 CFR 14.507(b) will fall within the scope of 5 U.S.C. 552(a)(1) and be subject to its terms concerning publication and actual notice. New 38 CFR 14.507(b) has thus been modified to recognize the applicability of 5 U.S.C. 552(a)(1) to opinions designated as "precedent opinions" pursuant to that regulation, and such opinions will be treated by the Agency in accordance with the referenced statute.

Another commenter asserted that the Freedom of Information Act requires maintenance by the VA of an index of General Counsel opinions. This commenter expressed the view that such an index should include all opinions of the General Counsel and the VA District Counsels, regardless of precedential effect, and all past, as well as future, opinions. This commenter also suggested that the index be made available for sale and be made available for inspection at all VA stations.

Section 552(a)(2) of Title 5, United States Code, provides for indexing of "interpretations which have been adopted by the agency and are not published in the *Federal Register*." Interpretations within the scope of section 552(a)(2) may be relied on or used by an agency against an individual only if the interpretation has been duly indexed and made available or published or the individual has actual and timely notice of its terms. The VA concludes that written legal opinions of the General Counsel which are conclusive as to all Agency officials and employees pursuant to new 38 CFR 14.507(a) and which are not published in the *Federal Register* will fall within the scope of 5 U.S.C. 552(a)(2) and be subject to its terms concerning indexing and actual notice. New 38 CFR 14.507(a) has thus been modified to recognize the applicability of 5 U.S.C. 552(a)(2) to opinions to be accorded conclusive effect pursuant to that regulation, and such opinions will be treated by the Agency in accordance with the referenced statute. The index to be maintained pursuant to 5 U.S.C. 552(a)(2) will be made available to the public in accordance with applicable legal requirements.

The VA does not consider legal opinions which are advisory only to be interpretations adopted by the Agency within the meaning of 5 U.S.C. 552(a)(1)(D) or (a)(2)(B) and thus does not consider them subject to the publication requirements of section 552(a)(1) or the indexing provisions of section 552(a)(2). Opinions issued by the VA District Counsels, since not accorded conclusive effect under 38 CFR 14.507(a), are considered advisory only and not subject to 5 U.S.C. 552(a)(1) or (a)(2). Further, because VA statutes and regulations did not previously give precedential or conclusive effect to General Counsel opinions not adopted or approved by the Administrator of Veterans Affairs, the VA does not consider General Counsel opinions issued prior to promulgation of new 38 CFR 14.507 and not adopted or approved by the Administrator to be subject to section 552(a)(1) or (a)(2) requirements.

The Administrator of Veterans Affairs has long since discontinued the practices of approving and adopting as Administrator's Decisions legal opinions prepared by the General Counsel and of issuing "instructions" for the implementation of statutes. Although such documents are largely of historical interest at this time, Board of Veterans Appeals regulations continue to contain a provision binding the Board to follow decisions and instructions of the

Administrator in its consideration of appeals. A similar antiquated reference to Administrator's Decisions and opinions approved by the Administrator and to defined policies as enunciated by the Administrator also appears in Agency adjudication regulations. In order to update the regulations and simplify the classification system for legal opinions, the Agency is amending 38 CFR 3.101 and 19.103 to delete reference to Administrator's Decisions, opinions approved by the Administrator, and instructions and enunciated policies of the Administrator. Pursuant to this change, such decisions, opinions, instructions, and policy statements will be without precedential or conclusive effect in future Agency adjudications.

It is not the VA's intention through these amendments to effect a change in legal principles currently governing claim adjudication. The VA believes that generally legal principles enunciated in Administrator's Decisions affecting benefits have long since been adopted in regulations or are no longer applicable due to amendment or repeal of the statutory provisions to which they pertained. Should a claim arise in which an Administrator's Decision would have been dispositive of a legal issue but for these regulatory amendments, the Agency intends to apply the legal interpretation enunciated in such decision. Accordingly, the General Counsel may, on a case-by-case basis, reissue, under the terms of new § 14.507, opinions formerly adopted as Administrator's Decisions. Any opinion so reissued will have the same effect as a written legal opinion newly issued under that section.

One commenter expressed the view that the proposed amendments would perpetuate what it perceives as a confusing variety of opinions on legal issues. The VA feels that the amendments will reduce any potential for confusion by establishing three classes of opinions involving benefits, i.e., precedent opinions, conclusive opinions without precedential effect, and opinions which are advisory only. However, for purposes of consistency, in order to further clarify the application of the regulations, and to eliminate use of terms such as "adjudication" and "appellate review", which were apparently considered confusing by this commenter, the VA has modified new 38 CFR 2.6(e)(9) and 14.507 to better define the types of opinions to which these sections apply.

Under these provisions as modified, the General Counsel may designate as precedential and give binding effect to a written legal opinion "involving

veterans' benefits under laws administered by the Veterans Administration." This terminology is intended to parallel the jurisdiction of the Board of Veterans Appeals as defined in 38 CFR 19.1 through 19.3. Thus, the term is intended to include not only claims for monetary benefits but also waiver claims and other administrative debt collection matters, determinations of eligibility for a variety of services, devices and equipment, and other matters relating to benefits. In keeping with legislative development of statutes relating to judicial review of VA decisions and attorney fees for representation in benefit matters, the word "claim" has been deleted from the regulations to further clarify that matters other than affirmative claims for benefits are included within the scope of the regulation. The term "veterans' benefits" is intended to include benefits provided to veterans, their dependents, and their survivors. Also, to improve clarity and more specifically define its scope, revised 38 CFR 14.507 has been modified to limit the authority granted therein to the General Counsel and the Deputy General Counsel acting as or for the General Counsel.

One commenter expressed the view that any opinion meeting the criteria set forth in proposed 38 CFR 14.507(b) should be designated as precedential and the General Counsel should not have discretion in making the designation. However, the VA believes there are likely to be situations where designation of an opinion as precedential may not be desirable even though it meets the criteria provided in the regulation. Such situations may arise, for example, where an opinion involves a rapidly developing area of the law or when a major judicial opinion on a issue is expected in the foreseeable future. The VA therefore concludes that the General Counsel should retain discretion as to which opinions meeting the criteria of § 14.507 should be designated precedent opinions.

One commenter, noting that under proposed 38 CFR 14.507(a) advice, recommendations, or conclusions on matters of Government or Agency policy contained within an otherwise conclusive written legal opinion shall not be considered binding on Agency officials, suggested that format for opinions be employed to differentiate which portions of an opinion are deemed binding. The critical distinction in assessing the conclusive effect of statements in a written legal opinion is whether the statements address policy matters or interpret the law. The VA feels that in most cases this distinction

will be readily apparent from the text of the opinion. In those rare instances where questions may arise, the General Counsel may provide clarification upon request.

Section 14.507(b) of the proposed rules provided that all precedent opinions would be entered in the Office of the General Counsel's computer data base. One commenter suggested that the VA clarify its policy regarding public access to this computer data base. Another commenter pointed out the difficulty service organization representatives and members of the public may have in accessing and using this data base and urged that adequate means be employed to make General Counsel opinions available to the public.

The VA believes that recognition of the applicability of 5 U.S.C. 552(a) (1) and (2) to particular classes of General Counsel opinions imposes on the Agency an obligation to make such opinions available to the public in accordance with the statutory terms. Difficulties with public access to the Agency's current computer system have been noted. Given the changing nature of the VA's information management capabilities, the Agency considers it prudent at this time to maintain flexibility as to the means by which the public availability requirements of the Freedom of Information Act will be addressed. Accordingly, while the VA maintains its commitment to public availability of opinions in accordance with law, references to public availability and to the General Counsel's computer data base have been deleted from new 38 CFR 14.507(b).

The VA notes that, in adopting this regulation, it does not intend to waive its authority under applicable law to withhold from public disclosure particular opinions designated as "advisory only" pursuant to new 38 CFR 14.507. The VA does intend, however, to make such opinions available to the public to the fullest extent compatible with the General Counsel's responsibility as legal counsel to the Agency.

Finally, one commenter contended that due process requires a claimant be provided a copy of a legal opinion affecting his or her claim and an opportunity to rebut that opinion prior to the Agency's reliance on the opinion in determination of the claim. This commenter also contended that the claimant should be given notice when a request for opinion is made and should be informed of those portions of the opinion upon which the decisionmaker relies.

To the extent that this comment suggests the existence of a right on the part of a claimant to participate in the development of a legal opinion affecting his or her claim, the commenter cited no authority for this proposition, and the VA is aware of none. Such participation would be inappropriate in light of the Agency's special expertise in interpreting its own statutes and regulations. Further, since decisionmakers would not be free to disregard conclusive opinions issued pursuant to 38 CFR 14.507(a), the correctness of such an interpretation would not be an issue at a hearing on the subject claim and the extent of reliance by the decisionmaker would not be in doubt. Apart from due process considerations, however, the VA plans to review its procedures to assure adequate notice of controlling General Counsel opinions to assist claimants in the appeal and judicial-review processes.

In light of the foregoing, the subject regulatory proposal is amended as noted above, and the rules as so amended are adopted as final rules as set forth below.

The Administrator hereby certifies that these regulatory amendments will not have a significant economic impact on a substantial number of small entities as they are defined in the Regulatory Flexibility Act, 5 U.S.C. 601-612. Pursuant to 5 U.S.C. 605(b), these regulatory amendments are therefore exempt from the initial and final regulatory flexibility analyses requirement of sections 603 and 604. The reason for this certification is that regulatory amendments will have only a limited, beneficial effect on claimants and their representatives.

These regulatory amendments have been reviewed under E.O. 12291 and have been determined to be non-major because they will not have any adverse economic impact on or increase costs to consumers, individual industries, Federal, State, and local government agencies, or geographic regions.

There are no Catalog of Federal Domestic Assistance numbers associated with these regulatory amendments.

List of Subjects

38 CFR Part 2

Authority delegations.

38 CFR Part 3

Administrative practice and procedure, Claims, Disability benefits, Health care, Pensions, Veterans.

38 CFR Part 14

Claims, Foreign relations, Government employees, Lawyers, Legal services, Organization and functions, Reporting and recordkeeping requirements, Surety bonds, Trusts and trustees, Veterans.

38 CFR Part 19

Administrative practice and procedure, Claims, Veterans.

Approved: January 5, 1989.

Thomas K. Turnage,
Administrator.

38 CFR Parts, 2, 3, 14, and 19 are amended as follows:

PART 2—[AMENDED]

1. In 38 CFR Part 2, Delegations of Authority, § 2.6, paragraph (e)(9) is redesignated as paragraph (e)(10); paragraph (e)(10) is redesignated as (e)(11); and a new paragraph (e)(9) is added to read as follows:

§ 2.6 Administrator's delegations of authority to certain officials (38 U.S.C. 212(a)).

(e) *General Counsel.*

(9) The General Counsel, or the Deputy General Counsel acting as or for the General Counsel, is authorized to designate, in accordance with established standards, those legal opinions of the General Counsel which will be considered precedent opinions involving veterans' benefits under laws administered by the Veterans' Administration.

(Authority: 38 U.S.C. 210, 212)

PART 3—[AMENDED]

2. In 38 CFR Part 3, Adjudication, § 3.101 is revised to read as follows:

§ 3.101 Decisions to conform.

All decisions will conform to the statutes and regulations of the Veterans Administration and to the precedent opinions of the General Counsel. Unless designated as precedent opinions under § 14.507(b) of this chapter, legal opinions in individual cases will not be required to be followed as precedents in subsequent cases.

(Authority: 38 U.S.C. 210)

PART 14—[AMENDED]

3. In 38 CFR Part 14, Legal Services, General Counsel, § 14.507 is revised to read as follows:

§ 14.507 Opinions.

(a) A written legal opinion of the General Counsel involving veterans' benefits under laws administered by the Veterans Administration shall be conclusive as to all Agency officials and employees with respect to the matter at issue, unless there is a change in controlling statute or regulation, a superseding written legal opinion by the General Counsel, or the designation on its face as "advisory only" by the General Counsel or the Deputy General Counsel acting as or for the General Counsel. Written legal opinions having conclusive effect under this section and not designated as precedent opinions pursuant to paragraph (b) of this section shall be considered by the Veterans Administration to be subject to the provisions of 5 U.S.C. 552(a)(2). Advice, recommendations, or conclusions on matters of Government or Agency policy, contained within a written legal opinion, shall not be binding on Agency officials and employees merely because of their being contained within a written legal opinion. Written legal opinions will be maintained in the Office of the General Counsel. Written legal opinions involving veterans' benefits under laws administered by the Veterans Administration, which pertain to a particular benefit matter, in addition to being maintained in the Office of the General Counsel, will be filed in the individual claim folder.

(b) A written legal opinion of the General Counsel involving veterans' benefits under laws administered by the Veterans Administration which, in the judgment of the General Counsel or the Deputy General Counsel acting as or for the General Counsel, necessitates regulatory change, interprets a statute or regulation as a matter of first impression, clarifies or modifies a prior opinion, or is otherwise of significance beyond the matter at issue, may be designated a "precedent opinion" for purposes of such benefits. Written legal opinions designated as precedent opinions under this section shall be considered by Veterans Administration to be subject to the provisions of 5 U.S.C. 552(a)(1).

(c) For purposes of this section, the term "written legal opinion of the General Counsel" means a typed or printed memorandum or letter signed by the General Counsel or by the Deputy General Counsel acting as or for the General Counsel, addressed to an official or officials of the Veterans Administration, stating a conclusion on a legal issue pertaining to Veterans Administration activities.

(Authority: 38 U.S.C. 210)

PART 19—[AMENDED]

4. In 38 CFR Part 19, Board of Veterans Appeals, § 19.103, paragraph (a) is revised to read as follows:

§ 19.103 Rule 3; Governing criteria.

(a) *General.* In the consideration of appeals, the Board shall be bound by the laws and regulations of the Veterans Administration and precedent opinions of the General Counsel.

(Authority: 38 U.S.C. 4004(c))

[FR Doc. 89-2642 Filed 2-3-89; 8:45 am]

BILLING CODE 8320-01-M

38 CFR Part 14**Indemnification of Veterans Administration Employees**

AGENCY: Veterans Administration.

ACTION: Final regulation.

SUMMARY: Existing Veterans Administration (VA) policy does not provide for the use of Agency funds to indemnify employees who suffer adverse money judgments or personal damage claims as a result of official acts. This amendment to VA regulations parallels recently-adopted Department of Justice regulations in permitting indemnification in appropriate situations as determined by the Administrator or designee. The amendment also provides that VA attorneys participating in VA determinations whether to recommend Department of Justice representation in the above matters, and who assist in any authorized representation, have an attorney-client relationship with the employee with respect to the attorney-client privilege. The amendment will affect the VA's operations by significantly reducing the reluctance of VA employees to take decisive action for fear of reprisal resulting in lawsuits. This enhances the overall efficiency of the VA.

EFFECTIVE DATE: February 6, 1989.

FOR FURTHER INFORMATION CONTACT: Audley Hendricks, Assistant General Counsel (Q23), Office of the General Counsel, Veterans Administration, 810 Vermont Avenue, NW, Washington, DC 20420, (202) 233-3671.

SUPPLEMENTARY INFORMATION: The Comptroller General has issued opinions stating that Federal agencies may both assume liability for settlement and use appropriated funds to pay reasonable costs of legal representation in such cases. See 67 Comp. Gen. No. B-229052 (October 28, 1987); Unpub. C.G. Decision

B-176229 (September 22, 1977). Department of Justice regulation, 18 CFR 50.15(a)(7)(iii), provides that Federal employees, where authorized, may apply for indemnification for money damages from their employing agencies upon entry of an adverse verdict, judgment or other monetary award as a result of conduct taken within the scope of their employment. VA policy does not now provide for indemnification of Agency employees who are sued in their individual capacity and who suffer an adverse judgment, nor does it provide for settlement of these claims with Agency funds. Lawsuits against Federal employees in their personal capacity have proliferated since the Supreme Court's decision in *Bivens v. Six Unknown Named Agents of the Federal Bureau of Narcotics*, 403 U.S. 388 (1971). As reported by the Department of Justice, since 1971, over 12,000 claims have been filed against Federal employees; nearly 5,000 actions are now pending. A growing number of such suits have been filed against VA officials. These suits attack VA officials performing a wide variety of functions. These suits do not include medical malpractice claims for which, pursuant to 38 U.S.C. 4116, the Federal Tort Claims Act provides the exclusive remedy.

The risk of personal liability and burden of defending a suit as a result of performing one's employment duties have a significant effect on Agency operations. An adverse judgment against a Federal employee has detrimental consequences for both the individual and the Government. The potential for being found personally liable and the uncertainty as to what actions may culminate in a lawsuit intimidate all employees, discouraging initiative and decisiveness. As Professor Kenneth Culp Davis has stated:

The public suffers whenever a government employee resolves doubts in order to protect his own pocketbook instead of resolving doubts in order to protect the public interest . . . courageous action of public employees is discouraged by the threat of a lawsuit against the employee personally.

K. Davis, *Constitutional Torts* 25, 18 (1984).

The Agency believes that lawsuits against Federal employees in their personal capacity seriously hinder the Agency's effective functioning. A change in VA policy to provide for indemnification of its employees would help alleviate this problem and afford VA employees the same protection now given to other Federal officials. As noted previously, the Department of Justice recently has adopted a similar policy allowing for indemnification of

Department employees. 28 CFR 50.15(c). See also 13 CFR 114.112 (Small Business Administration).

This amendment permits, but does not require, the Agency to indemnify an employee who suffers an adverse judgment, verdict, or monetary award. The authority applies where the actions giving rise to the claim or judgment fall within the individual's scope of employment, and it requires the Administrator or designee to determine that indemnification is in the interest of the VA. In rare instances, where the Administrator deems it appropriate, an individual damage claim may be settled with Agency funds prior to entry of judgment. Absent exceptional circumstances, however, the VA may not agree to indemnify an employee or settle a claim before entry of an adverse determination. This restriction against settlements is designed to discourage claims brought against Agency employees solely in order to pressure the Agency into settlement. Denial of dispositive motions or delay in deciding such motions will ordinarily not lead to settlement before trial and judgment.

VA attorneys who participate in the process of determining whether VA will recommend that the Department of Justice should provide representation, or whether VA attorneys should assist in representation, may become privy to confidential information from the affected employee. VA attorneys who assist in representation similarly may become privy to confidential information. As a result, the VA policy recognizes that such information acquired by VA attorneys is subject to the attorney-client privilege.

These regulations are published in final form without the opportunity for public notice and comment because they constitute a general statement of policy relating to VA management and personnel; consequently, publication for public notice and comment is unnecessary (5 U.S.C. 553(a)(2); 38 CFR 1.12).

Since a notice of proposed rulemaking is unnecessary and will not be published, these amendments do not come within the term "rule" as defined in the Regulatory Flexibility Act, 5 U.S.C. 601(2), and are therefore not subject to the requirements of the act. Nevertheless, these amendments will not have a significant economic effect on a substantial number of small entities as they are defined in the Regulatory Flexibility Act, 5 U.S.C. 601-602.

The Administrator hereby certifies that these regulations do not contain a major rule as the term is defined by Executive Order 12291, Federal Regulation. The regulations will not

have a \$100 million annual effect on the economy, and will not cause a major increase in costs and prices for anyone. They will have no significant adverse effects on competition, employment investment, productivity, innovation, or on the ability of United States-based enterprises to compete in domestic or export markets.

These amendments do not impose any additional reporting or recordkeeping requirements on the public which require the approval of the Office of Management and Budget under 44 U.S.C. 3501 et seq.

List of Subjects in 38 CFR Part 14

Claims, Government employees, Lawyers, Legal services.

Approved: December 15, 1988.

Thomas K. Turnage,
Administrator.

38 CFR Part 14, Legal Services, General Counsel, is amended as set forth below:

PART 14—[AMENDED]

1. The undesignated centered heading before § 14.514 is revised to read as follows:

Litigation (Other Than Under the Federal Tort Claims Act); Indemnification

2. a. In § 14.514, paragraph (c) is redesignated as paragraph (e).

b. In Section 14.514, the section heading is revised, and new paragraphs (c) and (d) are added, to read as follows:

§ 14.514 Suits by or against United States or Veterans Administration officials; Indemnification of Veterans Administration employees.

(c) *Indemnification.* (1) The Veterans Administration may indemnify a Veterans Administration employee, who is personally named as a defendant in any civil suit in state or Federal court or an arbitration proceeding or other proceeding seeking damages against the employee personally, where either 28 U.S.C. 2679 or 38 U.S.C. 4116 is not applicable, for any verdict, judgment, or other monetary award which is rendered against such employee; provided that: the alleged conduct giving rise to the verdict, judgment, or award was taken within the scope of his or her employment and that such indemnification is in the interest of the Veterans Administration, as determined by the Administrator or his designee.

(2) The Veterans Administration may settle or compromise a personal damage claim against a Veterans Administration

employee, in cases where the provisions of either 28 U.S.C. 2679 or 38 U.S.C. 4116 are not applicable, by the payment of available funds, at any time; provided that: the alleged conduct giving rise to the personal damage claim was taken within the employee's scope of employment and that such settlement or compromise is in the interest of the Veterans Administration, as determined by the Administrator or his designee.

(3) Absent exceptional circumstances as determined by the Administrator or his designee, the Agency will not entertain a request either to agree to indemnify or to settle a personal damage claim before entry of an adverse verdict, judgment, or award.

(4) A Veterans Administration employee may request indemnification to satisfy a verdict, judgment, or award entered against that employee. The employee shall submit a written request, with appropriate documentation including copies of the verdict, judgment, award, or settlement proposal, in a timely manner to the Veterans Administration General Counsel, who shall make a recommended disposition of the request. Where the Veterans Administration determines it appropriate, the Agency shall seek the view of the Department of Justice. The General Counsel shall forward the employee request for indemnification, and the accompanying documentation, with the General Counsel's recommendation to the Administrator for decision.

(5) Any payment under this section either to indemnify a Veterans Administration employee or to settle or compromise a personal damage claim shall be contingent upon the availability of appropriated funds of the Veterans Administration.

(d) *Attorney-client privilege.* Attorneys employed by the Veterans Administration who participate in any process utilized for the purpose of determining whether the Agency should request the Department of Justice to provide representation to an Agency employee sued, subpoenaed or charged in his individual capacity, or whether attorneys employed by the Veterans Administration should provide assistance in the representation of such an Agency employee, undertake a full and traditional attorney-client relationship with the employee with respect to application of the attorney-client privilege. If representation is authorized, Veterans Administration attorneys who assist in the representation of an employee also undertake a full and traditional attorney-client relationship with the employee with respect to the attorney-

client privilege. Any adverse information communicated by the client-employee to an attorney during the course of such attorney-client relationship shall not be disclosed to anyone, either inside or outside the Veterans Administration, other than attorneys responsible for representation of the employee, unless such disclosure is authorized by the employee.

[FR Doc. 89-2689 Filed 2-3-89; 8:45 am]

BILLING CODE 8320-01-M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

42 CFR Part 57

Grants for Health Professions Projects in Geriatrics

AGENCY: Public Health Service, HHS.

ACTION: Final regulations.

SUMMARY: These final regulations set forth requirements which govern the program for Grants for Health Professions Projects in Geriatrics, authorized by section 788(d) of the Public Health Act (the Act), as amended by the Health Professions Training Assistance Act of 1985, and Title VI—Geriatric Training Amendments of 1986.

DATE: These regulations are effective February 6, 1989.

FOR FURTHER INFORMATION CONTACT: William Koenig, Deputy Chief, Associated Health Professions Branch, Division of Associated and Dental Health Professions, Bureau of Health Professions, Health Resources and Services Administration, Parklawn Building, Room 8-103, 5600 Fishers Lane, Rockville, Maryland 20857; telephone number: 301 443-6887.

SUPPLEMENTARY INFORMATION: On May 6, 1988, the Assistant Secretary for Health, Department of Health and Human Services, with the approval of the Secretary, published in the *Federal Register* (53 FR 16293), a Notice of Proposed Rulemaking (NPRM) to add a new Subpart 00 to Part 57 of Title 42 of the Code of Federal Regulations to implement regulations governing Grants for Health Professions Projects in Geriatrics, authorized by section 788(d) of the Public Health Service Act, as amended by Pub. L. 99-129, the Health Professions Training Assistance Act of 1985, enacted on October 22, 1985, and Title VI—Geriatric Training of Pub. L. 99-660, enacted on November 14, 1986. Section 788(d) authorizes the Secretary

to make grants to and enter into contracts with accredited schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine, chiropractic, allied health, and programs for the training of physician assistants to assist in meeting the costs of projects to:

(a) Improve the training of health professionals in geriatrics;

(b) Develop and disseminate curricula relating to the treatment of the health problems of elderly individuals;

(c) Expand and strengthen instruction in methods of such treatment;

(d) Support the training and retraining of faculty to provide such instruction (other than training and retraining of faculty for schools of medicine and osteopathy);

(e) Support continuing education of health professionals and allied health professionals who provide such treatment; and

(f) Establish new affiliations with nursing homes, chronic and acute disease hospitals, ambulatory care centers, and senior centers in order to provide students with clinical training in geriatric medicine.

The Department proposed to implement section 788(d) by awarding grants for projects which support one or more of the statutory purposes and provide assistance to either a single health professions school or program, or a group of such schools or programs.

The NPRM included a definition for "training and retraining of faculty" to mean "a program to train and retrain faculty to provide geriatric instruction which is not a 1-year retraining program for faculty in schools of medicine and osteopathy in geriatrics or a 1-year or 2-year internal medicine or family medicine fellowship program as identified in section 788(e)(3) of the Act."

The Department also proposed that in determining the funding of applications approved under this program, the Department will announce, and solicit public comment on, any special factors related to national needs in periodic notices in the *Federal Register*.

The public comment period for this NPRM ended July 5, 1988. The Department received four comments. A summary of the comments and the Department's response are set forth below.

The majority of the comments concerned the definition of a "health professions school" as it pertains to eligibility to be the recipient of a grant under section 788(d)(1) of the Act, and the definition of a "health professional"

as it pertains to individuals eligible to participate in training under section 788(d)(1) (A)-(F) of the Act. One respondent noted that although "nurse" and "nurse practitioner" were included in the definition of "health professional," nursing schools were not included in the definition of "health professions school." The reason that schools of nursing were excluded from the definition of "health professions schools" and, consequently, from those entities which are eligible to receive a grant, is that the statute does not authorize their inclusion.

The NPRM defined a "health professions school" to mean "any accredited school of medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, veterinary medicine, public health, and chiropractic as defined in section 701(4) of the Act and as accredited in section 701(5) of the Act." "Health professional" was defined as "any allopathic or osteopathic physician, dentist, optometrist, podiatrist, pharmacist, nurse, nurse practitioner, physician assistant, chiropractor, or allied health professional." Section 788(d)(1) authorizes the Secretary "to make grants to and enter into contracts with accredited health professions schools referred to in section 701(4) or 701(10) and programs referred to in section 701(8) * * *." Schools of nursing are not included in the types of schools identified in section 701(4) or covered by section 701 (8) or (10). Thus, schools of nursing are not eligible to be the direct recipient of a grant or contract under section 788(d). However, schools and other entities not eligible to receive a grant or contract may participate in projects covering the broad range of geriatric education activity described in section 788(d)(1) (A)-(F). For example, a school of medicine which is eligible as a grantee can include a school of nursing as part of a collaborative project proposal. Although schools of nursing are not eligible to be the recipient of a grant under section 788(d), the Department believes that the key role of professional nurses in providing geriatric services makes it essential that they be included in comprehensive geriatric education initiatives.

The distinction between eligibility to be a grantee and a participating health professional also applies to an inquiry received concerning whether schools of psychology would be eligible for support. Although these schools are not eligible to be grantees under section 701(4), 701(8) or 701(10) of the Act, the Secretary believes that these professions should be listed under the

definition of "health professionals" as potential trainees under these projects. Therefore, the definition of a "health professional" has been changed to include clinical psychologists and health administrators.

It was also suggested that schools of social work should be included in the definition of "health professions schools." The Department believes that the proposed regulation adequately provides for the effective participation of schools of social work in projects supported under section 788(d).

Several respondents advocated specific types of activities for support, such as: The dissemination and use of existing, as opposed to developing new, curricula; efforts to recruit potential geriatric practitioners; affiliations between geriatric education programs and State units on aging and area agencies on aging; and targeted short-term faculty development for the entire faculty of a department of family medicine.

The Department notes that all of these activities could be included under the broad project purposes set forth in § 57.4004. In fact, some of the existing efforts cited have already been undertaken through Geriatric Education Centers and other projects funded under section 788(d) of the Act. The Secretary believes a flexible approach for funding permits the effective use of scarce educational resources and multidisciplinary approaches. Therefore, § 57.4004 has been retained as proposed.

These final regulations include technical and clarifying revisions to incorporate current departmental grants policy language. Since the revisions are technical in nature, the Secretary has determined pursuant to 5 U.S.C. 553 and departmental policy that is unnecessary and impractical to follow proposed rulemaking procedures. These revisions are summarized below according to the section numbers and titles of the regulations.

1. Revise § 57.4003, entitled "*Who is eligible to apply for a grant?*", by inserting in the footnote a parenthetical phrase, which provides the PHS form and OMB approval numbers for the application form and instructions.

2. Revise § 57.4005(b), entitled "*How will applications be evaluated?*", by removing the words "priority for" and adding the word "of" after the word "funding" to be consistent with recent departmental policy language regarding funding preferences.

3. Revise § 57.4006(b), entitled "*How long does grant support last?*", by removing the second sentence in

paragraph (b) which is repetitive of language regarding the submission of a separate application to receive consideration for continued support stated in the last sentence of paragraph (c) of this section.

4. Revised § 57.4009, entitled "*What other audit and inspection requirements apply to grantees?*", by adding the current OMB information collection approval number at the end of the section text.

"On May 10, 1988, the Office of Management and Budget published in the *Federal Register* (53 FR 16618, Part II) revised regulations to implement amendments to the Paperwork Reduction Act of 1980, made by the Paperwork Reduction Reauthorization Act of 1986. These revised regulations set forth additional requirements for information collections which agencies must publish in the preamble of regulations. In compliance with this requirement, the public response burden concerning information collections clearance for this grant program is presented in the preamble. The inclusion of these burdens, however, does not change the statutory provisions of the regulations that govern the Grants for Health Professions Projects in Geriatrics program."

Regulatory Flexibility Act and Executive Order 12291

These regulations govern a financial assistance program in which participation is voluntary. The rule will not exceed the threshold level of \$100 million established in section (b) of Executive Order 12291. For these reasons, the Secretary has determined this rule is not a major rule under Executive Order 12291 and a regulatory impact analysis is not required. Further, because the rule does not have a significant economic impact on a substantial number of small entities, a regulatory flexibility analysis under the Regulatory Flexibility Act of 1980 is not required.

Paperwork Reduction Act of 1980

This final rule contains information collections which have been approved by the Office of Management and Budget under the Paperwork Reduction Act of 1980 and assigned control number 0915-0128. The title, description, and respondent description of the information collections are shown below with an estimate of the annual reporting and recordkeeping burden. Included in the estimate is the time for reviewing instructions, searching

existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Title: Grants for Health Professions Projects in Geriatrics.
Description: The audit requirement for 42 CFR 57.4009 is needed to account for

expenditures of grant funds by health professions schools.
Description of Respondents: Nonprofit institutions.

ESTIMATED ANNUAL REPORTING AND RECORDKEEPING BURDEN:

Section No.	Annual No. of respondents	Annual frequency ¹	Average burden per response ¹	Annual burden hours
57.4009	25	1	4 hours	100 hours.

¹ Audits are estimated to take approximately 8 hours to complete. Since the audits in § 57.4009 are to be conducted biennially, the average burden per response has been reduced by one-half, or 4 hours, to indicate the annual response burden.

We received no public comments on the estimated public reporting burden, and it remains the same as in the proposed rule.

List of Subjects in 42 CFR Part 57

Dental health, Health facilities, Education of the disadvantaged, Health professions, Educational facilities, Loan programs-health, Educational study program, Medical and dental schools, Emergency medical services, Scholarships and fellowships, Grant programs-health, Student aid.

Accordingly, a new Subpart 00 to Part 57 of Title 42 of the Code of Federal Regulations is added, as set forth below.

Dated: November 2, 1988.

Robert E. Windom,

Assistant Secretary for Health.

Approved: December 2, 1988.

Otis R. Bowen,

Secretary.

(Catalog of Federal Domestic Assistance, No. 13.969, Grants for the Training of Health Professions in Geriatrics)

PART 57—GRANTS FOR CONSTRUCTION OF TEACHING FACILITIES, EDUCATIONAL IMPROVEMENTS, SCHOLARSHIPS, AND STUDENT LOANS

1. 42 CFR Part 57 is amended by adding a new Subpart 00, entitled "Grants for Health Professions Projects in Geriatrics" to read as follows:

Subpart 00—Grants for Health Professions Projects in Geriatrics

Sec.

57.4001 To what projects do these regulations apply?

57.4002 Definitions.

57.4003 Who is eligible to apply for a grant?

57.4004 Project requirements.

57.4005 How will applications be evaluated?

57.4006 How long does grant support last?

57.4007 For what purposes may grant funds be spent?

57.4008 What additional Department regulations apply to grantees?

57.4009 What other audit and inspection requirements apply to grantees?

57.4010 Additional conditions.

Subpart 00—Grants for Health Professions Projects in Geriatrics

Authority: Sec. 215 of the Public Health Service Act, 58 Stat. 690, 67 Stat. 631 (42 U.S.C. 216); sec 788(d) of the Public Health Service Act, 99 Stat. 542 (42 U.S.C. 295g-8).

§ 57.4001 To what projects do these regulations apply?

These regulations apply to grants to eligible schools and programs under section 788(d) of the Public Health Service Act for geriatric training projects.

§ 57.4002 Definitions.

"Act" means the Public Health Service Act, as amended.

"Allied health professional" means an individual who has received a certificate, an associate degree, a bachelor's degree, a master's degree, a doctoral degree, or postbaccalaureate training, in a science relating to health care and meets the requirements as established in section 701(13) of the Act.

"Budget period" means the interval of time into which the project period is divided for budgetary and reporting purposes, as specified in the grant award document.

"Continuing education" means structured educational programs for practicing health professionals and allied health professionals for the purpose of improving the knowledge and skills in geriatrics of such practitioners with respect to treatment of the health problems of elderly individuals.

"Geriatrics" is the total health and social care of the elderly.

"Geriatric Medicine" means the prevention, diagnosis, care and treatment of illness and disability as required by the distinct needs of the elderly.

"Health professional" means any allopathic or osteopathic physician, dentist, optometrist, podiatrist, pharmacist, nurse, nurse practitioner, physician assistant, chiropractor, clinical psychologist, health administrator, or allied health professional.

"Health professions school" means any school of medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, veterinary medicine, public health, and chiropractic as defined in section 701(4) of the Act and as accredited in section 701(5) of the Act.

"Nonprofit" means an entity owned and operated by one or more corporations or associations, no part of the net earnings of which inures or may lawfully inure to the benefit of any private shareholder or individual.

"Program for the training of physician assistants" means any educational programs as defined in section 701(8) of the Act.

"Project director" means an individual designated by the grantee in the grant application and approved by the Secretary to direct the project being supported under this subpart.

"Project period" means the total time for which support for a project has been approved including any extensions of the project.

"School of allied health" means a public or nonprofit private junior college, college, or university which provides or can provide a program of education to enable individuals to become allied health professionals or to provide additional training for allied health professions and which meets the criteria set forth in section 701(10) of the Act.

"Secretary" means the Secretary of Health and Human Services and any other officer or employee of the Department of Health and Human Services to whom the authority involved has been delegated.

"State" means, in addition to the several States, only the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands (the Republic of Palau), the Republic of the Marshall Islands, and the Federated States of Micronesia.

"Training and retraining of faculty" means a program to train and retrain faculty to provide geriatric instruction which is not a 1-year retraining program for faculty in schools of medicine and osteopathy in geriatrics or a 1-year or 2-year internal medicine or family medicine fellowship program as identified in section 788(e)(3) of the Act.

§ 57.4003 Who is eligible to apply for a grant?

Any public or nonprofit health professions school, school of allied health, or program for the training of physician assistants located in a State may apply for a grant under this subpart. Each eligible applicant desiring a grant under this subpart shall submit an application in the form and at the time the Secretary may prescribe.¹

§ 57.4004 Program requirements.

(a) The Secretary will award grants to meet the cost of carrying out one or more of the following six purposes:

- (1) Improve the training of health professionals in geriatrics;
- (2) Develop and disseminate curricula relating to the treatment of the health problems of elderly individuals;
- (3) Expand and strengthen instruction in methods of geriatric treatment;
- (4) Support the training and retraining of faculty;
- (5) Support continuing education of health professionals and allied health professionals who provide geriatric treatment; and
- (6) Establish new affiliations with nursing homes, chronic and acute disease hospitals, ambulatory care centers, and senior centers in order to provide students with clinical training in geriatric medicine.

Projects may include one or more of the activities in paragraph (a)(1)-(6) of this section for one or more types of health professionals as defined in § 57.4002 of this subpart.

(b) Each project must evaluate the program systematically, including the determination of a baseline at the outset of the project and the measurement of the degree to which program and educational objectives are met.

§ 57.4005 How will applications be evaluated?

(a) After a peer review group, as required by section 788(d)(2)(B) of the Act, composed principally of non-Federal experts, makes recommendations concerning each

application, the Secretary will consult with the National Advisory Council on Health Professions Education, established in section 702 of the Act, with respect to such applications. The Secretary will decide which applications to approve by considering, among other factors:

- (1) The degree to which the proposed project adequately provides for the project requirement described in § 57.4004;
 - (2) The extent to which the rationale and specific objectives of the project are based upon a needs assessment of the status of geriatrics training in the institutions to be assisted and/or the geographic area to be served;
 - (3) The ability of the project to achieve the project objectives within the proposed geographic area;
 - (4) The adequacy of educational facilities and clinical training settings to accomplish objectives;
 - (5) The adequacy of organizational arrangement involving professional schools and other organizations necessary to carry out the project;
 - (6) The adequacy of the qualifications and experience in geriatrics of the project director, staff and faculty;
 - (7) The administrative and managerial ability of the applicant to carry out the proposed project in a cost-effective manner; and
 - (8) The potential of the project to continue on a self-sustaining basis.
- (b) In determining the funding of applications approved under paragraph (a) of this section, the Secretary will consider any special factors relating to national needs as the Secretary may from time to time announce in the Federal Register.

§ 57.4006 How long does grant support last?

(a) The notice of grant award specifies the length of time the Secretary intends to support the project without requiring the project to re compete for funds. This period, called the project period, will not exceed 5 years.

(b) Generally, the grant will initially be funded for 1 year, and subsequent continuation awards will also be for 1 year at a time. Decisions regarding continuation awards and the funding levels of these awards will be made after consideration of such factors as the grantee's progress and management practices, existence of legislative authority, and the availability of funds. In all cases, continuation awards require a determination by the Secretary that continued funding is in the best interest of the Federal Government.

(c) Neither the approval of any application nor the award of any grant

shall commit or obligate the United States in any way to make any additional, supplemental, continuation or other award with respect to any approved application or portion of an approved application. For continuation support, grantees must make separate application at such times and in such a form as the Secretary may prescribe.

§ 57.4007 For what purposes may grant funds be spent?

(a) A grantee shall only spend funds it receives under this subpart according to the approved application and budget, the authorizing legislation, terms and conditions of the grant award, applicable cost principles specified in Subpart Q of 45 CFR Part 74, and these regulations.

(b) Grantees may not spend grant funds for sectarian instruction or for any religious purpose.

(c) Any balance of federally obligated grant funds remaining unobligated by the grantee at the end of a budget period may be carried forward to the next budget period, for use as prescribed by the Secretary, provided a continuation award is made. If at any time during a budget period it becomes apparent to the Secretary that the amount of Federal funds awarded and available to the grantee for that period, including any unobligated balance carried forward from prior periods, exceeds the grantee's needs for the period, the Secretary may adjust the amounts awarded by withdrawing the excess. A budget period is an interval of time (usually 12 months) into which the project period is divided for funding and reporting purposes.

§ 57.4008 What additional Department regulations apply to grantees?

Several other regulations apply to grants under this subpart.

These include, but are not limited to:

- 42 CFR Part 50, Subpart D—Public Health Service grant appeals procedure
- 45 CFR Part 16—Procedures of the Departmental Grant Appeals Board
- 45 CFR Part 46—Protection of human subjects
- 45 CFR Part 74—Administration of grants
- 45 CFR Part 75—Informal grant appeals procedures
- 45 CFR Part 80—Nondiscrimination under programs receiving Federal assistance through the Department of Health and Human Services effectuation of Title VI of the Civil Rights Act of 1964
- 45 CFR Part 81—Practice and procedure for hearings under Part 80 of this Title

¹ Applications and instructions (Form PHS 6025-1, OMB #0915-0060) may be obtained from the Grants Management Officer, Bureau of Health Professions, Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20857.

- 45 CFR Part 83—Regulation for the administration and enforcement of sections 799A and 845 of the Public Health Service Act¹
- 45 CFR Part 84—Nondiscrimination on the basis of handicap in programs and activities receiving or benefiting from Federal financial assistance
- 45 CFR Part 86—Nondiscrimination on the basis of sex in education programs and activities receiving or benefiting from Federal financial assistance
- 45 CFR Part 91—Nondiscrimination on the basis of age in HHS programs or activities receiving Federal financial assistance

§ 57.4009 What other audit and inspection requirements apply to grantees?

Each grantee must, in addition to the requirement of 45 CFR Part 74, meet the requirements of section 705 of the Act, concerning audit and inspection.

(Approved by the Office of Management and Budget under control number 0915-0128.)

§ 57.4010 Additional conditions.

The Secretary may impose additional conditions in the grant award before or at the time of the award if he or she determines that these conditions are necessary to assure or protect the advancement of the approved activity, the interest of the public health, or the conservation of grant funds.

[FR Doc. 89-2701 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-15-M

Health Care Financing Administration

42 CFR Part 405

[BERC-408-F]

Medicare Program; Payment for Kidneys Sent to Foreign Countries or Transplanted in Patients Other Than Medicare Beneficiaries

AGENCY: Health Care Financing Administration (HCFA), HHS.

ACTION: Final rule.

SUMMARY: These final regulations exclude from Medicare payments made to organ procurement organizations the costs associated with kidneys sent to foreign countries or transplanted in patients other than Medicare beneficiaries.

In addition to reducing Medicare expenditures by eliminating Medicare subsidization of the costs of kidneys sent to foreign countries or transplanted

in patients other than Medicare beneficiaries, we intend these regulations to increase the availability of kidneys to Medicare beneficiaries who are suitable transplant candidates. This could result in medical and social benefits for transplanted patients, and reductions in Medicare expenditures because kidney transplantation is more cost-effective than maintaining beneficiaries on kidney dialysis.

DATE: These regulations are effective on March 8, 1989.

FOR FURTHER INFORMATION CONTACT: Mark Horney, (301) 966-4554.

SUPPLEMENTARY INFORMATION:

I. Background

The Social Security Amendments of 1972 (Pub. L. 92-603) extended Medicare coverage to individuals with end stage renal disease (ESRD) who require dialysis or transplantation. Section 1881 of the Social Security Act (the Act) provides for Medicare payment for kidney transplantation. One of the major components of kidney transplantation is the retrieval of organs through an organ procurement organization (OPO). An OPO, whether independent or hospital-based, is defined in Medicare regulations (42 CFR 485.302 as published on March 1, 1988, 53 FR 6526) as an organization that performs or coordinates the performance of retrieving, preserving, and transporting organs and maintains a system to locate prospective recipients for available organs.

Since the inception of the ESRD program, OPOs have procured kidneys from donors. Once kidneys are retrieved, the OPO searches for and identifies acceptable recipients and coordinates transporting these kidneys to other OPOs, transplant centers or foreign countries. The OPO places kidneys with a transplant organization based on the best possible match of tissue type, blood type, etc., as well as consideration for cold ischemic time (the amount of time a kidney has been outside the body and packed on ice), transportation distance, etc.

The Medicare program pays separately for kidney acquisition services and kidney transplantations. The OPO bills each of the organizations that receive kidneys a standard acquisition charge for each kidney. The standard acquisition charge reflects the cost of removing, preserving, and transporting a kidney, etc. While a hospital-based OPO develops its own charge, an independent OPO's charge is developed by its Medicare fiscal intermediary based on the OPO's costs of operating. These standard acquisition

charges become the interim payment for each OPO. The OPO submits its cost of operating on a cost report at the end of its fiscal year. The cost report details both the costs of procuring kidneys and the amounts received from the shipment of kidneys to other OPOs, transplant centers, military hospitals, Veterans Administration (VA) hospitals, and foreign countries. The net difference between the total cost and the total amount received represents the amount due to or from the intermediary.

The Medicare program has always paid the total costs of OPOs because we assumed that all kidneys procured were for Medicare beneficiaries. However, we now realize that this assumption is incorrect and that technology has allowed a significant number of kidneys to be shipped overseas. Since the Medicare program has been paying the cost of procuring kidneys shipped overseas or transplanted into patients other than Medicare beneficiaries, we believe that some action needs to be taken. It is now necessary to amend the regulations in order to effectuate the statutory principles embodied in section 1861(v)(1)(A) of the Act. Section 1861(v)(1)(A) of the Act requires that the cost of services be borne by the appropriate payer. Accordingly, the cost associated with the kidneys not used by Medicare beneficiaries must be borne by the responsible individual or third party payer. Medicare is precluded from paying any costs associated with kidneys not used by Medicare beneficiaries.

On March 2, 1988, we published a proposed rule (53 FR 6672) that would exclude the costs associated with kidneys sent to foreign countries or transplanted in patients other than Medicare beneficiaries from Medicare payments made to OPOs.

II. Provisions of the Proposed Rule

The preamble to the March 2, 1988 proposed rule (53 FR 6673) includes an explanation of current kidney transplantation practices and the proposed regulation provisions and rationale. The final regulation provisions that appear in section IV of this preamble restate the proposed regulation provisions, with the few exceptions noted in that section.

III. Analysis of and Responses to Public Comments

We received 10 timely comments in response to the March 2, 1988 proposed rule. Comments were submitted by OPOs, a nurses' association, and two group health insurance organizations.

¹ Section 799A of the Public Health Service Act was redesignated as section 704 by Pub. L. 94-434; section 845 of the Public Health Service Act was redesignated as section 855 by Pub. L. 94-63.

The major comments and our responses follow.

Comment: Some commenters suggested that we require that all organs be procured through the national Organ Procurement and Transplantation Network (OPTN) before sending them to a foreign country. They also believe that kidneys should not be sent to a foreign country unless all costs are paid by the foreign transplant center.

Response: All Medicare-certified OPOs are required to query the OPTN system for a suitable recipient in the United States if the procured organs cannot be used locally. We agree that this is a necessary requirement to ensure that there is not a suitable recipient in this country. However, it is not the responsibility of the OPTN to arrange or coordinate the exportation or importation of organs, and OPOs are free to make these arrangements directly. As for payment, it is the responsibility of the OPO, not the OPTN, to assure that the foreign transplant center pays the costs of the organ.

Comment: One commenter stated that Canada should not be characterized as a foreign country because of its willingness to share organs.

Response: We cannot accept this suggestion. Section 1862(a)(4) of the Act and Medicare regulations at 42 CFR 405.313 preclude reimbursement by the Medicare program for services performed outside the United States. Therefore, any organs sent to recipients in Canada will be treated as organs sent to a foreign country. Of course, nothing in this requirement need impede organ transfers between the two countries provided that proper cost accounting and billing procedures are followed.

Comment: Several commenters expressed concerns that implementing these regulations would result in an unrecoverable financial loss to nonprofit OPOs or an increase in the discard rate.

Response: The Medicare program has always tried to ensure that it pays only for the services furnished to its beneficiaries. Services furnished to other than Medicare beneficiaries should be paid by those patients or their third-party payers. We are not prohibiting an OPO from sending organs to a foreign country; we are simply not reimbursing these costs under the Medicare program. Section 1861(v)(1)(A) of the Act requires the Medicare program to pay only for the services furnished to Medicare beneficiaries.

While it is true that OPOs are at risk for any financial loss that may occur, we believe that there has been ample time for OPOs to set up memoranda of understanding or lines of credit with

selected foreign transplant programs to ensure payment for these organs.

Comment: We received a comment that criticized excluding from Medicare payment the cost of kidneys "when all attempts to utilize the organs in Medicare beneficiaries have failed". The commenter believes that kidneys will be wasted.

Response: We agree that some of these kidneys may be wasted if not used in this country or sent to a foreign transplant center. Costs for kidneys that are wasted and not used either in this country or in a foreign country will be included in the OPOs' cost reports and paid by Medicare based on the ratio of Medicare kidneys to total kidneys. However, we believe that when a kidney is shipped to a foreign country and used in that country, the Medicare program should not be responsible for the cost of that kidney. Accordingly, if a kidney is sent to a foreign country, Medicare will not longer subsidize the cost of procuring that kidney.

Comment: In an effort to encourage the use of kidneys in this country rather than sending them to foreign countries, a commenter suggested that we increase the length of stay limits under the diagnosis related group (DRG). The commenter believes that this suggestion may encourage physicians to use kidneys that have been preserved longer than 40 hours.

Response: First, we believe it is necessary to point out Medicare does not have any length of stay limits for transplantation or for any other DRG. Secondly, Medicare has two methods that will allow a facility to receive additional reimbursement for atypical cases. Additional DRG payments are available to hospitals when the length of stay for a transplant exceeds a specific number of days, or when the cost of services exceeds prescribed thresholds (See §§ 412.82 and 412.84.). Accordingly, there is no payment barrier to the use of kidneys that have been preserved in excess of 40 hours and we see no reason to increase the DRG payment for these kidneys.

Comment: One commenter explained a long-standing reciprocal organ acquisition arrangement its OPO has with a U.S. military hospital in its area. The military renal transplant program (MRTP) is a recipient of kidneys for transplant from the OPO. The OPO and MRTP developed a Memorandum of Understanding due to the fact that military hospitals have no system that allows them to charge civilian OPOs for organ recovery costs. MRTP gets first choice on kidneys recovered from military hospitals, although only 44 of the 124 organs procured in the past 5

years were retained by the MRTP. Eighty organs were used by Medicare certified transplant centers. For kidneys retained by the MRTP, there are no charges by either the OPO or the military hospital for their respective organ recovery costs. Under this long-standing arrangement, the commenter believes its OPO would be adversely affected by the proposed regulation and increased costs to the OPO and the Medicare program would result.

Response: As a result of this long-standing arrangement that is beneficial to the Medicare program, we find it necessary to revise the proposed regulation so that equitable reimbursement to the OPO is maintained. Any special arrangement such as the one mentioned above that was in effect before March 3, 1988 (the publication date of the proposed rule) will be accepted. For these cases, the kidneys procured by an OPO at a military renal transplant hospital and retained for transplant at the hospital will be deemed as Medicare kidneys for cost reporting statistical purposes. While we know of no other special arrangements, if any similar arrangements existed before March 3, 1988, the OPO must submit a request to the fiscal intermediary for review and approval of these arrangements. Absent a special arrangement that existed before March 3, 1988, all kidneys sent to a non-Medicare institution are to be treated as non-Medicare kidneys.

Comment: A commenter stated that included in its hospital-based transplant program costs are a significant amount of pre-transplant costs and living related donor costs that would be partially excluded if a kidney was shipped to a foreign country or transplanted into a patient other than a Medicare beneficiary. The commenter suggested that these costs be removed before any computation that would eliminate the cost of kidneys sent to foreign countries or transplanted into patients other than Medicare beneficiaries.

Response: With respect to pre-transplant costs, we believe that the costs of laboratory tests for waiting list candidates are legitimate costs that should be included with the non-Medicare kidney cost allocation. Living related costs are normal hospital procurement costs that should be included in the overall cost. The amount of non-Medicare costs that will be removed will be a proportionate share of an average of the total costs incurred by the transplant center. In fact, living related acquisition costs are not significantly different from cadaveric acquisition costs. Based on these

considerations, we do not see the need for the more sophisticated recordkeeping system that this change will require.

Comment: One commenter questioned the proper handling of patients who are in their first 12 months of ESRD coverage and who are partially or totally covered by group health insurance. The commenter questioned if these secondary payer situations would be considered Medicare transplants or non-Medicare.

Response: We plan to treat secondary payer issues in exactly the same manner as we do all other hospital services. Specifically, if a beneficiary has primary insurance coverage and payment by the primary payer satisfies the liability of the Medicare program, the transplant will be considered a non-Medicare transplant for cost reporting purposes. If the primary payer does not satisfy all of the Medicare program's liability, the transplant will be considered a Medicare transplant for cost reporting purposes. This is consistent with Medicare billing and cost reporting instructions.

Comment: One commenter stated that it is possible for an OPO to sell an organ to a foreign transplant center in excess of its cost. The commenter believes that this situation conflicts with section 301 of the National Organ Transplant Act (Pub. L. 98-507), which prohibits the sale of human organs in excess of the cost to acquire them.

Response: We are also concerned with the sale of human organs for a profit. Even though this regulation is silent on the issue, we expect all intermediaries that discover what appears to be a profit-making arrangement, for not only kidneys but any human organs, to notify the Office of the Inspector General.

Comment: Several commenters mentioned that it is impossible for an OPO to know whether or not the recipient at the transplant center is a Medicare beneficiary.

Response: As stated in the proposed rule (53 FR 6674) any kidney sent to a Medicare-certified transplant center from an OPO will be assumed to be used for Medicare beneficiaries. Once the kidney is received by the transplant center, actual transplant experience will dictate the cost report treatment of these organs. In addition, as mentioned above, kidneys sent to U.S. military transplant hospitals will be treated as Medicare kidneys on the OPO's Medicare cost report.

IV. Provisions of this Final Rule

The regulation provisions of this final

rule, for the most part, restate the regulation provisions of the proposed rule. The final rule differs from the proposed rule in that we—

- Replaced the term "organ procurement agency (OPA)" with "organ procurement organization (OPO)" to conform the language to final regulations that were published on March 1, 1988 (53 FR 6526) for OPOs and organ procurement protocols;

- Replaced the use of the term "harvest" with "procure" in response to comments we received; and

- Revised the examples we used in discussing the regulation provisions in response to concerns raised by commenters about military hospitals and the number of nonviable kidneys.

For the reasons explained in the proposed rule, we are adding a new regulation section (42 CFR 413.179) that applies to all OPOs and any Medicare-certified transplant centers that claim kidney acquisition costs on worksheet D-6 of the Hospital Cost Report (HCFA-2552). (42 CFR Part 413 was established on September 30, 1986, at 51 FR 34790.) We will require that kidneys sent to foreign transplant centers or transplanted in patients other than Medicare beneficiaries be excluded from Medicare payments to OPOs. OPOs that send kidneys to foreign countries must ensure that they receive the full amount from the foreign transplant centers for procurement and transportation of the kidneys. We will require OPOs to separate costs associated with kidneys that are sent to foreign countries or transplanted in patients other than Medicare beneficiaries from Medicare allowable costs prior to final settlement by the Medicare fiscal intermediary. The fiscal intermediary will compute the ratio of the number of kidneys used for Medicare beneficiaries to the total number of kidneys used and adjust the costs for kidneys sent to foreign countries or transplanted in patients other than Medicare beneficiaries. For this purpose, kidneys furnished to other OPOs or Medicare-certified transplant centers in the United States will be assumed to be used for transplants in Medicare beneficiaries. As explained earlier in our response to a comment, we will treat kidneys sent to U.S. military institutions in the same manner as kidneys sent to any other Medicare-certified transplant centers from an OPO. Accordingly, any kidney sent to a Medicare-certified transplant center or to one of the two U.S. military transplant centers by a certified OPO will be deemed to be a Medicare kidney for

reimbursement purposes on the OPO's cost report. However, any costs associated with kidney transplants for patients other than Medicare beneficiaries that are performed in transplant centers will be excluded from total costs of the transplant centers, thereby excluding them from Medicare reimbursement. (The Medicare program will continue to pay for its proportionate share of costs incurred in procuring kidneys that were not transplanted.)

We issued contractor operating instructions to the Provider Reimbursement Manual (HCFA Pub. 15-2, Part II, Chapter 21) in January 1987 that require all OPOs to maintain a log detailing placement efforts effective February 4, 1987. (In the proposed rule, we inadvertently referred to January 1988 instructions.) This is intended to document the efforts that OPOs are making to place kidneys in Medicare beneficiaries before shipping kidneys overseas.

We have detailed below two examples using identical data that show the method of reimbursing OPOs for kidney acquisition costs under the current and revised methodologies.

Total Kidneys—130
Total Usable Kidneys—120
Total Nonviable Kidneys—10
Total Foreign Kidneys—20
Total Military Kidneys—10
Total VA Kidneys—10
Total Cost—\$1,200,000 ¹
Foreign Revenue—\$25,000 ²
Military Revenue—\$100,000
VA Revenue—\$100,000
Payments from Other OPOS or Transplant Centers—\$850,000

A. Current Methodology

Under the current methodology, the total cost of procuring kidneys is reduced by the revenue received and the balance is the amount due to or from the Medicare fiscal intermediary. Using the above data in the computation below, the amount the Medicare fiscal intermediary will pay the OPO will be \$125,000 on final settlement.

¹ Included in the \$1,200,000 total cost are costs associated with nonviable (unusable) kidneys. The Medicare program will continue to pay for its proportionate share of costs incurred in procuring kidneys that were not transplanted.

² It is expected that the revenue from the sale of kidneys to foreign countries will increase. As a result, the OPO will receive the same reimbursement in total, but more will come from the foreign country rather than from the Medicare program.

Total cost.....	\$1,200,000
Less military, VA, and foreign revenue..	-225,000
Subtotal.....	975,000
Less payments from Medicare OPOs and transplant centers.....	-850,000
Balance due OPO from inter- mediary.....	\$125,000

B. Revised Methodology

Under the revised methodology, an OPO's total cost for all kidneys is reduced by the costs associated with kidneys transplanted in patients other than Medicare beneficiaries or sent to foreign countries regardless of income received from these sources. Using the above data in the computation below, the amount the OPO will pay the Medicare program at the end of the OPO's fiscal year is \$50,000.

Step 1—Compute the Medicare Ratio

(Medicare Usable Kidneys)	=	(Total Usable Kidneys)	—	(Total Foreign & VA Kidneys)
90	=	120	—	30

Medicare Ratio	=	Medicare Usable Kidneys	÷	Total Usable Kidneys
75	=	90	÷	120

Step 2—Compute Medicare Allowable Costs

Total cost (net of transportation costs for exported kidneys).....	\$1,200,000
Multiplied by Medicare ratio (.75).....	X .75
Medicare costs.....	900,000

Less payments from OPOs, military hospitals, and transplant centers for Medicare kidneys.....	-950,000
Balance due Medicare Program from OPO.....	\$(50,000)

In the above example, Medicare payments will decrease from \$975,000 under the current system to \$900,000 under the revised system. OPOs may recoup costs of kidneys from patients other than Medicare beneficiaries or foreign countries that receive the kidneys.

IV. Regulatory Impact Statement

Executive Order 12291 (E.O. 12291) requires us to prepare and publish a regulatory impact analysis for any final regulations that are likely to meet criteria for a "major rule." A major rule is one that results in:

- (1) An annual effect on the economy of \$100 million or more;
- (2) A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or any geographic regions; or
- (3) Significant adverse effects on competition, employment, investment, productivity, innovation or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

In addition, consistent with the Regulatory Flexibility Act (RFA) (5 U.S.C. 601-612), we prepare and publish a regulatory flexibility analysis for final regulations unless the Secretary certifies that the regulations will not have a significant impact on a substantial number of small entities. For purposes of the RFA, we consider OPOs to be small entities.

Currently, there are 72 OPOs, 50 of which are independent (that is, not hospital-based). We expect that the revised system will result in reduced payments to some OPOs, since the Medicare program will no longer

subsidize the costs of kidneys that are sent to foreign countries or transplanted in patients other than Medicare beneficiaries. It will result in some program savings, estimated to be approximately \$1 million for the first full year of implementation of this regulation. While we expect that some OPOs will experience reductions in Medicare revenues, these reductions will not be substantial unless an OPO provides a disproportionately large number of kidneys to foreign countries. This rule will have an adverse effect on total revenue only if an OPO is unable to obtain payment for the costs associated with kidneys transplanted into patients other than Medicare beneficiaries or sent to foreign countries. We do not believe this is likely; rather, we believe that OPOs will be able to recover their costs not reimbursed by Medicare from patients other than Medicare beneficiaries and foreign transplant centers.

As discussed above, one potential consequence of this change will be an increase in the number of kidneys available for Medicare beneficiaries who need transplants. To the extent that this potential is realized, there will be resulting reductions in Medicare expenditures since patients can be transferred from more costly dialysis to less costly transplantation. These savings will be contingent on matching kidneys with appropriate recipients within a time period considered acceptable. To some extent this may depend on whether U.S. surgeons accept kidneys with a longer cold ischemic time for transplantation. Thus, the savings are not estimable.

We have determined that this regulation does not meet the criteria of E.O. 12291 and does not require a regulatory impact analysis. Also, we have determined, and the Secretary certifies, that this final rule will not have a significant economic impact on a

substantial number of small entities. Therefore, a regulatory flexibility analysis has not been prepared.

In addition, section 1102(b) of the Act requires the Secretary to prepare a regulatory impact analysis for any final rule that may have a significant impact on the operations of a substantial number of small rural hospitals. This analysis must conform to the provisions of section 604 of the RFA. For purposes of section 1102(b) of the Act, we define a small rural hospital as a hospital with fewer than 50 beds located outside a metropolitan statistical area. We have determined, and the Secretary certifies, that this final rule will not have a significant economic impact on the operations of a substantial number of small rural hospitals.

V. Information Collection Requirements

This rule contains no information collection requirements, therefore, it does not come under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501).

VI. List of Subjects in 42 CFR Part 413

Administrative practice and procedure, Health facilities, Health professions, Kidney diseases, Laboratories, Medicare, Nursing homes, Reporting and recordkeeping requirements, Rural areas, X-rays.

For the reasons set out in the preamble, Title 42, Part 413 is amended as follows:

PART 413—PRINCIPLES OF REASONABLE COST REIMBURSEMENT; PAYMENT FOR END-STAGE RENAL DISEASE SERVICES

Subpart H—Payment for End-Stage Renal Disease (ESRD) Services

1. The authority citation for Part 413 continues to read as follows:

Authority: Sections 1102, 1122, 1814(b), 1815, 1833(a), 1861(v), 1871, 1881, and 1886 of the Social Security Act as amended (42 U.S.C. 1302, 1320a-1, 1395f(b), 1395g, 1395l(a), 1395x(v), 1395hh, 1395rr, and 1395ww).

2. Section 413.179 is added to Subpart H to read as follows:

§ 413.179 Organ procurement organizations' (OPOs) or transplant centers' costs for kidneys sent to foreign countries or transplanted in patients other than Medicare beneficiaries

An OPO's or transplant center's total costs for all kidneys is reduced by the costs associated with procuring kidneys sent to foreign transplant centers or transplanted in patients other than Medicare beneficiaries. OPOs, as defined in § 485.302 of this chapter, must

separate costs for procuring kidneys that are sent to foreign transplant centers and kidneys transplanted in patients other than Medicare beneficiaries from Medicare allowable costs prior to final settlement by the Medicare fiscal intermediaries. Medicare costs are based on the ratio of the number of usable kidneys transplanted into Medicare beneficiaries to the total number of usable kidneys applied to reasonable costs. Certain long-standing arrangements that existed before March 3, 1988 (for example, an OPO that procures kidneys at a military renal transplant hospital for transplant at that hospital), will be deemed to be Medicare kidneys for cost reporting statistical purposes. The OPO must submit a request to the fiscal intermediary for review and approval of these arrangements.

(Catalog of Federal Domestic Assistance Program No. 13.773, Medicare Hospital Insurance and No. 13.774, Supplementary Medical Insurance)

Dated: September 18, 1988.

William L. Roper,
Administrator, Health Care Financing Administration.

Approved: November 21, 1988.

Otis R. Bowen,

Secretary.

[FR Doc. 89-2700 Filed 2-3-89; 8:45 am]

BILLING CODE 4120-03-M

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[MM Docket No. 88-153; RM-6273]

Radio Broadcasting Services; McFarland, CA

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes Channel 275B1 for Channel 275A at McFarland, California, and modifies the Class A license of Caballero Spanish Media, Inc. for Station KXEM-FM, as requested, to specify operation on the higher class channel, thereby providing that community with its first wide coverage area FM service. Reference coordinates for Channel 275B1 at McFarland are 35-29-33 and 119-11-43. With this action, the proceeding is terminated.

EFFECTIVE DATE: March 16, 1989.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, MM Docket No. 88-153, adopted December 14, 1988, and released January 30, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments for California, is amended by revising the entry for McFarland by deleting Channel 275A and adding Channel 275B1.

Federal Communications Commission.

Steve Kaminer,

Deputy Chief, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-2724 Filed 2-3-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 88-32; RM-6029]

Radio Broadcasting Services; Linton, IN

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes Channel 227B1 for Channel 228A at Linton, Indiana, and modifies the Class A license of Linton Broadcasting Company, Inc. for Station WQTY(FM), as requested, to specify operation on the higher class channel, thereby providing that community with its first wide coverage area FM service. Reference coordinates for Channel 227B1 at Linton are 38-56-46 and 87-18-40. With this action, the proceeding is terminated.

EFFECTIVE DATE: March 16, 1989.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, MM Docket No. 88-32, adopted December 21, 1988, and released January 30, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments for Indiana, is amended by revising the entry for Linton by deleting Channel 228A and adding Channel 227B1.

Federal Communications Commission.
Steve Kaminer,

*Deputy Chief, Policy and Rules Division,
Mass Media Bureau.*

[FR Doc. 89-2727 Filed 2-3-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 88-128; RM-6168]

Radio Broadcasting Services; Bastrop, LA

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes Channel 261C2 in lieu of channel 261A at Bastrop, Louisiana, and modifies the license of Station KMYQ-FM to specify operation on the higher class channel, as requested by Hagan Broadcasting, Inc. This action could provide Bastrop with its second wide coverage area FM station. A site restriction of 10.4 kilometers (6.5 miles) south of Bastrop is required at coordinates 32-41-28 and 91-56-55. With this action this proceeding is terminated.

EFFECTIVE DATE: March 16, 1989.

FOR FURTHER INFORMATION CONTACT:

Patricia Rawlings, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report

and Order, MM Docket No. 88-128, adopted December 21, 1988, and released January 30, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230) 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. § 73.202(b), the Table of FM Allotments is amended, under Louisiana, by removing Channel 261A and adding Channel 261C2 at Bastrop.

Steve Kaminer,

*Deputy Chief, Policy and Rules Division,
Mass Media Bureau.*

[FR Doc. 89-2726 Filed 2-3-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 88-124; RM-6073]

Radio Broadcasting Services; Moss Point, MS, and Jackson, AL

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes FM Channel 285C2 for Channel 285A at Moss Point, Mississippi, in response to a petition filed by Jackson County Broadcasters, Inc. We shall also modify the license of Station WKYQ(FM) to specify operation on Channel 285C2 in lieu of Channel 285A in accordance with § 1.420(g) of the Commission's Rules. The coordinates for Channel 285C2 are 30-24-21 and 88-24-20. To accommodate the substitution of channels at Moss Point, it is necessary to substitute Channel 233A for Channel 285A at Jackson, Alabama. Channel 233A can be substituted for Channel 285A in compliance with the Commission's spacing requirements at the current site of Station WHOD, Jackson. The coordinates for Channel 233A are 31-32-38 and 87-52-30. With this action this proceeding is terminated.

EFFECTIVE DATE: March 16, 1989.

FOR FURTHER INFORMATION CONTACT:

Kathleen Scheuerle, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, MM Docket No. 88-124, adopted December 20, 1988, and released January 30, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. In § 73.202(b), the Table of FM Allotments under Mississippi is amended by deleting Channel 285A and adding Channel 285C2 at Moss Point.

3. In § 73.202(b), the Table of FM Allotments under Alabama is amended by deleting Channel 285A and adding Channel 233A at Jackson.

Federal Communications Commission.

Steve Kaminer,

*Deputy Chief, Policy and Rules Division,
Mass Media Bureau.*

[FR Doc. 89-2725 Filed 2-3-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 88-31; RM-5682, RM-5848, RM-5979, RM-6166, RM-6384, and RM-6385]

Radio Broadcasting Services; Moscow, OH; Paris, Wilmore, Morehead, Falmouth, Winchester, Carrollton, Elizabethtown, Dry Ridge, Somerset, and Williamstown, KY

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document stays the opening of the filing window for FM Channel 245A at Dry Ridge, Kentucky, allotted in MM Docket No. 88-31. The window period for filing applications opened on January 30, 1989, and would have closed on March 1, 1989.

FOR FURTHER INFORMATION CONTACT: Michael Ruger, Mass Media Bureau, (202) 632-6302.

SUPPLEMENTARY INFORMATION: The final rule for this document was published at 54 FR 3781, Jan. 26, 1989. This is a summary of the Commission's Order Granting Request for Stay, MM Docket No. 88-31, adopted February 1, 1989, and released February 2, 1989. The full text of this Commission decision is available during business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.
Federal Communications Commission.
Steve Kaminer,
Deputy Chief, Policy and Rules Division,
Mass Media Bureau.
[FR Doc. 89-2831 Filed 2-3-89; 8:45 am]
BILLING CODE 6712-01-M

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

48 CFR Part 1837

Change to NASA FAR Supplement Concerning Pension Portability

AGENCY: Office of Procurement, Procurement Policy Division, National Aeronautics and Space Administration (NASA).

ACTION: Final rule.

SUMMARY: This notice amends the NASA Federal Acquisition Regulation Supplement (NFS), Chapter 18 of the Federal Acquisition Regulation System in Title 48 of the Code of Federal Regulations. This rule provides NASA's policy regarding pension portability in service contracts. It establishes the conditions and approvals required to include pension portability provisions in procurements.

EFFECTIVE DATE: February 15, 1989.

FOR FURTHER INFORMATION CONTACT: W.A. Greene, Chief, Regulations Development Branch, Procurement Policy Division (Code HP), Office of Procurement, NASA Headquarters,

Washington, DC 20546, Telephone: (202) 453-8923.

SUPPLEMENTARY INFORMATION:

Background

This rule was published for comment as a proposed rule in the *Federal Register* of December 13, 1988. No comments were received.

Impact

The Director, Office of Management and Budget (OMB), by memorandum dated December 14, 1984, exempted certain agency procurement regulations from Executive Order 12291. This regulation falls in this category. NASA certifies that this regulation will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 602 *et seq.*). This rule does not impose any reporting or recordkeeping requirements subject to the Paperwork Reduction Act of 1980.

List of Subjects in 48 CFR Part 1837

Government procurement.

S.J. Evans,
Assistant Administrator for Procurement.

1. The authority citation for 48 CFR Part 1837 continues to read as follows:

Authority: 42 U.S.C. 2473(c)(1).

Subpart 1837.1—Service Contracting

2. Subpart 1837.1 is amended by adding sections 1837.101, 1837.110, and 1837.170 to read as follows:

1837.101 Definitions.

"Pension portability" means the recognition and continuation in a successor service contract of the predecessor service contract's pension rights and benefits for contractor employees.

1837.110 Solicitation provisions and contract clauses.

The contracting officer shall obtain the Assistant Administrator for Procurement's (Code HP) approval before using in a solicitation, contract, or negotiated contract modification for additional work any installation-developed clause involving pension portability.

1837.170 Pension portability.

It is NASA's policy not to require pension portability in service contracts. However, if it is in the Government's best interest, NASA may consider the inclusion of pension portability requirements in a service contract under the following conditions:

(a) Only defined contribution plans shall be permitted in portability provisions;

(b) At a minimum, vesting shall be 100 percent at contract completion or termination; and

(c) There must be a clear description of the plan, including coverage regarding service, pay, and benefits, as appropriate, from prior contractors.

[FR Doc. 89-2832 Filed 2-3-89; 8:45 am]

BILLING CODE 7510-01-M

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 192 and 195

[Docket No. PS-95, Amdt. 192-62 and 195-40]

[RIN 2137-AB24]

Gas and Hazardous Liquid Pipelines; Referenced Standards Deletion Affecting Iron, Steel, and Copper Pipe and Other Materials

AGENCY: Research and Special Programs Administration (RSPA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: This final rule deletes references to certain voluntary design and construction standards concerning cast iron, ductile iron, wrought steel, and wrought iron pipe; copper pipe and tubing; well casing tubing and drill pipe; bronze flanges; and other materials. The references are no longer needed for safety because the materials have minimal or no usage in new gas and hazardous liquid pipelines. This action significantly reduces the number of voluntary standards that are now incorporated by reference in Parts 192 and 195 and the burden of keeping these references up-to-date.

EFFECTIVE DATE: This amendment takes effect March 8, 1989.

FOR FURTHER INFORMATION CONTACT: Paul J. Cory, (202) 366-4561, or the Dockets Unit, (202) 366-4148, regarding copies of this final rule or other material in the docket.

SUPPLEMENTARY INFORMATION:

Background

RSPA issued an Advance Notice of Proposed Rulemaking (ANPRM), published June 4, 1987 (52 FR 21087), and a Notice of Proposed Rulemaking (NPRM), published July 1, 1988, 53 FR 24968, inviting comment on the advisability of deleting from Parts 192

and 195 references to certain voluntary design and construction standards of the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), and the American Petroleum Institute (API). In addition, based on comments to the ANPRM on the question of what additional standards should be considered for deletion, certain standards of the Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS) were included in the NPRM. RSPA determined that the references may no longer be needed for materials that have minimal usage in new construction of gas and liquid pipelines and deleting the references would minimize the effort required to update the current editions of the references to voluntary standards in Parts 192 and 195. The ANPRM and the NPRM presented RSPA's arguments for deleting these references. In most cases deleting references involves revising individual Parts 192 and 195 sections to eliminate reference to the voluntary standard. In Part 192, however, some references are expressed indirectly by referring to a "listed specification," those listed in section I of Appendix B, and deleting any of these references involves changing Appendix B. In Part 192 all referenced voluntary standards are listed in Appendix A to provide names and addresses of publishers. In Part 195 a similar listing is in § 195.3. Thus, deletion of referenced standards also involves changes to Appendix A of Part 192, § 195.3, or both.

Comment Summary

There were 20 letters of comment to the NPRM, including 14 from pipeline operators, two from State pipeline regulatory agencies, three from industry organizations, and one from a fitting manufacturer. Comments generally agreed with the actions proposed by the notice; however, 11 comments addressed specific sections of the proposal. Significant comments and RSPA's responses are discussed hereafter.

Comment: An industry association and one pipeline operator argued against deletion of standards for ductile iron pipe, stating that if the corrosion standards of Part 192 permitted its use in certain soils without applying a protective coating and corrosion control, assuming costs were competitive, they would likely install ductile iron. They cited their own good record with ductile iron pipe as justification.

Response: The subject of corrosion requirements on ductile iron pipe was discussed at length in the NPRM in response to comments to the ANPRM.

Briefly, the discussion pointed out that when the Part 192 corrosion standards were published in 1971, there were no persuasive arguments given to exclude ductile iron pipe from the requirements. Since that time, no new data has been presented to RSPA to support a rule change. Besides all this, the primary consideration in this rulemaking is whether at the present time certain materials are being installed in significant amounts in new pipelines to justify maintaining references to voluntary standards to govern use of the materials. Since ductile iron is not being used for new pipelines, standards on ductile iron pipe are deleted in the final rule.

Comment: One industry association and two pipeline operators commented on the proposed revision of § 192.63(a). One comment suggested deleting § 192.63(a)(1), even though it merely restated the existing rule that components be marked according to the specification to which they are made. The rationale given was that for specifications other than "listed specifications," this marking requirement gives specification writers authority to set federal marking standards without appropriate government review. Another comment suggested adding "material" and "grade" to the list of items proposed to be marked on components under § 192.63(a)(2) to provide for correct usage. Another commenter said "as appropriate" should be added at the end of the list, since all listed items may not apply to all components.

Response: Reviewing the marking rule under § 192.63(a)(1), which has been in Part 192 since it was initially published in 1971, is beyond the scope of the present rulemaking which merely eliminates unnecessary or obsolete specifications and makes other conforming changes.

The comments pertaining to the proposed revision of § 192.63(a)(2) have merit, and the final rule is changed accordingly to state the information that is required for marking all items, and as appropriate for the item being marked, additional required information.

Comment: One industry association and two pipeline operators pointed out that in the proposed § 192.125(b), requiring the use of "Type L" pipe for copper service lines has no meaning. The "Type L" designation is used in ASTM B88 to specify wall thickness, and is not needed if the reference to ASTM B88 is deleted.

Response: RSPA agrees and has deleted the reference to "Type L" in the final rule. The table of wall thicknesses

that was in the proposed wording is sufficient without mentioning "Type L."

Comment: With regard to the proposed revision of § 192.145, Valves, one operator questioned whether the variation in test pressure of 1.5 times the pressure rating for steel valves, 2.0 for cast iron plug valves, and 1.75 for cast iron gate and swing check valves is justified from a safety viewpoint.

Response: The final wording of § 192.145 has been changed from that proposed in the NPRM to specify a uniform ratio of test level to pressure rating for all valves (1.5) regardless of material or type of valve. This same level is required by the voluntary standards for cast iron and plastic valves that are considered "equivalent" to API 6D. A test level of 1.5 times the pressure rating, uniform with the industry standard presently used for the manufacture of plastic valves, has been set for plastic valves consistent with the level set forth in API 6D for testing of the valve shell. API 6D is the only voluntary standard referenced in the final rule. The requirement contained in the notice that cast iron valves be tested "prior to painting" has been deleted in the final rule because it is superfluous.

Comment: One industry organization and one pipeline operator recommended that RSPA use performance language in § 192.145 for gas pipeline valve design similar to that used in § 195.116 for the design of liquid pipeline valves.

Response: The suggested extensive revision to the proposed rule is beyond the scope of this regulatory action. Also, it must be recognized that the two standards differ because § 195.116 pertains only to valves intended for use in steel pipelines, whereas § 192.145 pertains to valves intended for use in pipelines made of any material. Nevertheless, RSPA has a continuing project to eliminate needless dissimilarities between Parts 192 and 195, and will consider the need for performance language in § 192.145 when this rule is reviewed for that purpose.

Comment: One pipeline operator and one valve manufacturer agreed with deletion of MSS SP-78 in § 192.145, but pointed out that the words, "or equivalent," should be retained as they have permitted the use of improved standards for valves in gas distribution systems that exceed the requirements of MSS SP-78. The comments further pointed out that the equivalent standards being used to manufacture valves for gas distribution systems are:

ANSI B16.33-1981, Manual Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 125 psig (sizes ½" through 2")

ANSI B16.38-1985 Large Metallic Valves for Gas Distribution (Manually Operated, NPS 2½" to 12", 125 psig Maximum)
ANSI B16.40-1985, Manually Operated Thermoplastic Gas Shut-Offs and Valves in Gas Distribution Systems

One commenter recommended that § 192.145(b) be revised to eliminate the proposal to test each valve and rather require operators to conform to the "specifications" presently used for manufacturing these valves. The other commenter recommended that § 192.145 be revised to recognize the differences in the various valve materials by providing separate requirements for steel, ductile iron, cast iron, and plastic valves.

Response: RSPA has reviewed the three ANSI standards now in use for manufacturing valves for use in gas distribution systems and finds the testing levels to be substantially identical (1.5 times the maximum service pressure). Further, we do not agree that the requirement for testing individual valves should be eliminated, because it provides a good quality control check and demonstrates that the valves do not leak.

RSPA agrees that because of differences in the characteristics of materials used for valves, requirements of § 192.145 should recognize both similarities and differences. For instance, under the final rule, valves other than cast iron and plastic are required to meet API 6D, or equivalent. Test requirements for cast iron and plastic valves are the same. Certain additional limitations applying to the use of ductile iron valves in the current rule are retained.

Comment: One operator commented that the proposed wording of § 192.147(c) could lead to an unsafe design. The dimensions and drilling configuration of a cast iron flange is vital to make a workable joint, but the critical safety feature of a cast iron flanged component is its beam strength. The traditional method of recognizing this limitation has been to use flat-faced flanges with full-faced gaskets. The proposal should not imply that dimensions and drilling are the only safety concern, or should also mention flange facing and gasket criticality.

Response: RSPA agrees. The final rule in § 192.147(c) has been changed from the NPRM in response to the comment and the requirements of ANSI B16.1, paragraph 7.2, by adding face and gasket design to those items to which each cast iron flange must conform.

Comment: A pipeline operator stated in regard to the proposed revision of § 192.557(d) that if the design specifics of §§ 192.117 and 192.119 are removed,

there is no reason to maintain standards defining how input to stress formulas should be handled.

Response: RSPA does not agree because there are cast iron and ductile iron pipelines that may be uprated. However, as a result of the misunderstanding of the purpose that is illustrated by this comment and numerous other misunderstandings of this section in the past by both industry and enforcement personnel, clarifying wording has been added to § 192.557(d) to indicate the intent. Thus, the final rule remains as proposed, except that the "Note" at the end of § 192.557(d)(3) is deleted in response to a comment, since it is superfluous and refers to two standards which are no longer referenced as a result of this amendment.

Comment: Two comments questioned whether deleting references to voluntary standards governing design would affect the MAOP permitted for existing pipelines. Under § 192.619(a) MAOP may not exceed design pressure determined under Subparts C and D of Part 192. Also, under § 192.553(d) a pipeline may not be uprated to an MAOP higher than this same design pressure.

Response: RSPA recognizes that as a result of this rulemaking, certain types of pipe or components will no longer be specifically addressed under Subparts C and D. However, other general design requirements of Subparts C and D apply for purposes of determining MAOP under §§ 192.619 and 192.553(d). These requirements apply now to older systems that were built to unknown standards. Also, if previously referenced voluntary standards were used in pipe or component manufacture, Part 192 permits the use of these standards to establish the design pressure of the component or pipe in question. (See § 192.7)

Impact Assessment

This final rule is considered to be nonmajor under Executive Order 12291 and is not significant under DOT Regulatory Policies (44 FR 11034, Feb. 26, 1979). Because it includes no substantive revisions that could be expected to require significant changes in operator procedures or compliance burdens, and because the economic impact would be slight, a full regulatory evaluation is not required.

The agency certifies under section 605 of the Regulatory Flexibility Act that this final rule will not have a significant impact on a substantial number of small entities.

As a result of deletion of listed standards this final rule makes a

number of editorial and other clarifying changes to Parts 192 and 195 and does not impose any substantive new safety requirements exceeding those presently required by the standards being deleted.

Advisory Committee Review

The changes were considered in September 1988 by the Departments gas and liquid advisory committees, the Technical Pipeline Safety Standards Committee and the Hazardous Liquid Pipeline Safety Standards Committee, who approved them without modification.

List of Subjects

49 CFR Part 192

Cast iron pipe, Ductile iron pipe, Copper pipe, Valves, Flanges.

49 CFR Part 195

Pipeline safety, Design pressure, Specification.

In view of the foregoing, RSPA amends 49 CFR Parts 192 and 195 as follows:

PART 192—[AMENDED]

1. The authority citation for Part 192 continues to read as follows:

Authority: 49 App. U.S.C. 1672 and 1804; 49 CFR 1.53.

§ 192.57 [Removed and Reserved]

2. Section 192.57 is removed and reserved.

§ 192.61 [Removed and Reserved]

3. Section 192.61 is removed and reserved.

4. Section 192.63(a) is revised to read as follows:

§ 192.63 Marking of materials.

(a) Except as provided in paragraph (d) of this section, each valve, fitting, length of pipe, and other component must be marked—

(1) As prescribed in the specification or standard to which it was manufactured; or

(2) To indicate size, material, manufacturer, pressure rating, and temperature rating, and as appropriate, type, grade, and model.

* * * * *

§ 192.113 [Amended]

5. In the table in § 192.113 the entries for the following specifications are removed: "ASTM A134," "ASTM A135," "ASTM A139," AND "ASTM A211."

§ 192.117 [Removed and Reserved]

6. Section 192.117 is removed and reserved.

§ 192.119 [Removed and Reserved]

7. Section 192.119 is removed and reserved.

8. Section 192.125(b) is revised to read as follows:

§ 192.125 Design of copper pipe.

(b) Copper pipe used in service lines must have wall thickness not less than that indicated in the following table:

Standard size (inch)	Nominal O.D. (inch)	Wall thickness (inch)	
		Nominal	Tolerance
1/4	.625	.040	.0035
3/8	.750	.042	.0035
1/2	.875	.045	.004
3/4	1.125	.050	.004
1	1.375	.055	.0045
1 1/4	1.625	.060	.0045

9. In § 192.145, paragraph (a) is removed, paragraphs (b), (c), and (d) are redesignated (c), (d), and (e) respectively and new paragraphs (a) and (b) are added as follows:

§ 192.145 Valves.

(a) Except for cast iron and plastic valves, each valve must meet the minimum requirements, or equivalent, of API 6D. A valve may not be used under operating conditions that exceed the applicable pressure-temperature ratings contained in those requirements.

(b) Each cast iron and plastic valve must comply with the following:

(1) The valve must have a maximum service pressure rating for temperatures that equal or exceed the maximum service temperature.

(2) The valve must be tested as part of the manufacturing, as follows:

(i) With the valve in the fully open position, the shell must be tested with no leakage to a pressure at least 1.5 times the maximum service rating.

(ii) After the shell test, the seat must be tested to a pressure not less than 1.5 times the maximum service pressure rating. Except for swing check valves, test pressure during the seat test must be applied successively on each side of the closed valve with the opposite side open. No visible leakage is permitted.

(iii) After the last pressure test is completed, the valve must be operated

through its full travel to demonstrate freedom from interference.

10. Section 192.147 is amended by revising paragraph (a) and adding paragraph (c) to read as follows:

§ 192.147 Flanges and flange accessories.

(a) Each flange or flange accessory (other than cast iron) must meet the minimum requirements of ANSI B16.5, MSS SP-44, or the equivalent.

(c) Each flange on a flanged joint in cast iron pipe must conform in dimensions, drilling, face and gasket design to ANSI B16.1 and be cast integrally with the pipe, valve, or fitting.

§ 192.177 [Amended]

11. In § 192.177(b)(1), the words "either API Standard 5A or" are removed.

§ 192.275 [Amended]

12. Section 192.275(e) is removed.

§ 192.277 [Amended]

13. In § 192.277, paragraph (a) is removed and paragraphs (b) and (c) are redesignated as (a) and (b), respectively.

14. Section 192.279 is revised to read as follows:

§ 192.279 Copper pipe.

Copper pipe may not be threaded except that copper pipe used for joining screw fittings or valves may be threaded if the wall thickness is equivalent to the comparable size of Schedule 40 or heavier wall pipe listed in Table C1 of ANSI B16.5.

§ 192.557 [Amended]

15. In § 192.557(d) the introductory text and paragraph (d)(1) are revised to read as follows and the Note following the table in paragraph (d)(3) is removed:

(d) If records for cast iron or ductile iron pipeline facilities are not complete enough to determine stresses produced by internal pressure, trench loading, rolling loads, beam stresses, and other bending loads, in evaluating the level of safety of the pipeline when operating at the proposed increased pressure, the following procedures must be followed:

(1) In estimating the stresses, if the original laying conditions cannot be

ascertained, the operator shall assume that cast iron pipe was supported on blocks with tamped backfill and that ductile iron pipe was laid without blocks with tamped backfill.

Appendix A [Amended]

16. Section II of Appendix A to Part 192 is amended by removing and reserving items (1) and (2) from subdivision A; items (3), (4), (5), (9), (12), (14), (15), (16), (17), (18), and (19) from subdivision B; items (1), (2), (3), (6), (7), and (8), from subdivision C; and (1), (3), (4), and (5) from subdivision E. The remaining items in each subdivision are renumbered in appropriate sequence.

Appendix B [Amended]

17. Section I of Appendix B to Part 192 is amended by removing the following entries: "ASTM A134—Steel pipe (1974), ASTM A135—Steel pipe (1979), ASTM A139—Steel pipe (1974), ASTM A211—Steel and iron pipe (1975), ASTM A377—Cast iron pipe (1979), ASTM A539—Steel tubing (1979), ASTM B42—Copper pipe (1980), ASTM B68—Copper tube (1980), ASTM B75—Copper tube (1980), ASTM B88—Copper tube (1980), ASTM B251—Copper pipe and tubing (1976), and ANSI A21.52—Ductile iron pipe (1971)."

PART 195—[AMENDED]

18. The authority citation for Part 195 continues to read as follows:

Authority: 49 App. U.S.C. 2002 and 49 CFR 1.53.

§ 195.3 [Amended]

19. Section 195.3 is amended by removing and reserving paragraphs (c)(5) (iii), (iv), (v), and (ix).

§ 195.106 [Amended]

20. In the table in § 195.106(e), the entries for the following specifications are removed: "ASTM A134, ASTM A135, ASTM A139, and ASTM A211."

Issued in Washington, DC, on January 31, 1989.

M. Cynthia Douglass,

Administrator, Research and Special Programs Administration.

[FR Doc. 89-2542 Filed 2-3-89; 7:45 am]

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Proposed Rules

Federal Register

Vol. 54, No. 23

Monday, February 6, 1989

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

FEDERAL HOME LOAN BANK BOARD

12 CFR Parts 543, 544, and 545

[No. 89-84]

Release Of Customer Financial Records By Federal Associations; Withdrawal Of Proposed Rules

January 29, 1989.

AGENCY: Federal Home Loan Bank Board.

ACTION: Proposed rules; withdrawal.

SUMMARY: Today the Federal Home Loan Bank Board ("Board") is withdrawing previously proposed extensive revisions to its regulations regarding the corporate governance of Federal associations as they are redundant of and or conflict with a proposed regulation, entitled Release of Customer Financial Records by Federal Associations, published elsewhere in today's Federal Register.

DATE: This withdrawal is effective January 29, 1989.

FOR FURTHER INFORMATION CONTACT:

Jeffrey R. Williams, Attorney-Advisor, (202) 377-6559, Regulations and Legislation Division, Kathleen Ulrich, Attorney-Advisor, Corporate and Securities Division, (202) 377-7049, Office of General Counsel, Federal Home Loan Bank Board, 1700 G Street, NW., Washington, DC 20552; or Ben F. Dixon, Policy Analyst, (202) 331-4599, Policy Division, Office of Regulatory Affairs, Federal Home Loan Bank System, 801 Seventeenth Street, NW., Washington, DC 20006.

SUPPLEMENTARY INFORMATION: On November 22, 1985, the Board proposed extensive revisions to its regulations regarding the corporate governance of Federal associations. Corporate Governance II, 50 FR 52482 (December 24, 1985). As part of that effort, the Board proposed a new section 543.9-3 entitled "Books and records; stockholder access", 50 FR 52501. That proposed section, which generally dealt with bookkeeping requirements of Federal

stock associations, included a paragraph (d) entitled "Confidentiality of records" and provided that no stockholder or any other person had the right to obtain or inspect a list of depositors of a Federal stock association or the confidential customer records of that association.

Subsequently, on June 22, 1987, the Board proposed further extensive revisions to its regulations regarding the corporate governance of Federal associations. Corporate Governance, Parts III and IV, 52 FR 25870 (July 9, 1987). Included in that set of proposed rules was a proposed new § 544.9-2 entitled "Disclosure of membership lists; communication between members of a Federal mutual association", 52 FR 25880. Proposed section 544.9-2 included paragraph (a) entitled "Disclosure of membership list prohibited" and paragraph (b) entitled "Right to inspection of member's own record." Corporate Governance Parts III and IV also included proposed revised section 545.131 entitled "Disclosure of customer information", 52 FR 25883.

Since the foregoing regulatory provisions are redundant of and/or conflict with a proposed regulation creating a new section 545.132 adopted by the Board, published elsewhere in today's Federal Register and entitled "Release of Customer Financial Records by Federal Associations", the Board is withdrawing proposed § 543.9-3(d) of Corporate Governance Part II and § 544.9-2(a) and (b) and § 545.131 of Corporate Governance Parts III and IV.

By the Federal Home Loan Bank Board.
John F. Ghizzoni,
Assistant Secretary.

[FR Doc. 89-2705 Filed 2-3-89; 8:45 am]

BILLING CODE 6720-01-M

12 CFR Parts 545, 552

[No. 89-85]

Release of Customer Financial Records by Federal Associations

Date: January 29, 1989.

AGENCY: Federal Home Loan Bank Board.

ACTION: Proposed rule.

SUMMARY: The Federal Home Loan Bank Board (the "Bank Board" or "Board") is proposing to revise its regulations governing the release by federally

chartered savings and loan associations and savings banks ("Federal associations" or "associations") of customer financial records. The proposal would generally authorize a Federal association, whether chartered as a mutual association ("Federal mutual association"), or as a stock association ("Federal stock association"), to disclose the names and addressees of its customers to any party unless the customer objects, but would prohibit the disclosure of confidential information concerning customers' savings or loan accounts subject to specific exceptions. The proposal would modify the current requirement that Federal mutual associations obtain the prior approval of either the Board or a Supervisory Agent before releasing their customer records. Through this proposal, the Board seeks to balance the legitimate business interests of Federal associations in disclosing customer records with customer expectations of confidentiality.

In addition, by separate action, the Board is withdrawing certain proposed amendments to sections in 12 CFR 543 and 544 proposed in Corporate Governance Parts II, III and IV.

DATE: Comments must be received on or before April 7, 1989.

ADDRESS: Please send comment letters to the Director, Information Services Section, Office of the Secretariat, Federal Home Loan Bank Board, 1700 G Street NW., Washington, DC 20552. Comment letters will be available for inspection at 801 17th Street NW., Washington, DC 20552.

FOR FURTHER INFORMATION CONTACT:

Jeffrey R. Williams, Attorney-Advisor, (202) 377-6559, Regulations and Legislation Division, Kathleen Ulrich, Attorney-Advisor, Corporate and Security Division, (202) 377-7049, Office of General Counsel, Federal Home Loan Bank Board, 1700 G Street NW., Washington, DC 20552; or Ben F. Dixon, Policy Analyst, (202) 331-4599, Policy Division, Federal Home Loan Bank System, 801 17th Street NW., Washington, DC 20006.

SUPPLEMENTARY INFORMATION:

A. Current Regulations and Office of General Counsel Interpretations

Section 545.131(a) of the Board's regulation sets forth limitations on public disclosure by a Federal mutual

association of its "membership list." As used in § 545.131, a "membership list" includes a list of the names of the members of the association, their addresses, their savings account or loan account records, or any data from which information reasonably could be constructed. 12 CFR 545.131(a) (1988). Section 545.131(a)(2) generally prohibits Federal mutual associations from disclosing membership lists without the prior written approval of the Board. The regulation contains exceptions for disclosure to officers of the association and to those persons employed by them in the usual course of the association's business. Section 545.131(a) permits a Supervisory Agent to approve or disapprove an application by a Federal mutual association to release such lists and to specify any terms or conditions for such release. *Id.* § 545.131(a)(3). Section 545.131(b) gives a member of a Federal mutual association the right to inspect only those records of the association pertaining to his or her own savings or loan accounts.¹

In construing the provisions of § 545.131, the Board's Office of General Counsel ("OGC") has interpreted the regulation to permit disclosure to an "agent" of the association, pursuant to a written agency agreement, where the agent acts as the functional equivalent of an officer or employee conducting the business of the association in its usual course. Disclosure also has been permitted to an association's wholly owned service corporations or its wholly owned subsidiaries, when such release has been approved by the Supervisory Agent. Under the authority of Supervisory Agents to specify the terms and conditions of such approval, approval has been conditioned primarily upon the membership list being released to the service corporation or subsidiary pursuant to a written agreement that would protect the members' rights of privacy. *See, e.g.,* OGC Ops. by R. Stewart (Feb. 27, 1985); J. Williams (March 17, 1986) and J. Williams (March 21, 1986). While no Board regulation specifically applies to the release of customer lists by a Federal stock

association, other than 12 CFR 552.11(d) prohibiting release of depositor lists to stockholders, the OGC has by interpretive opinion applied to Federal stock associations the same limitations concerning release of customer lists as are applied to Federal mutual associations. *Id.*

B. Description of the Corporate Governance Proposals

As part of Corporate Governance II, III, and IV, the Board proposed changes to its regulations governing release of customer records. *See* 50 FR 52,482 (Dec. 24, 1985); 52 FR 25,870 (July 9, 1987). Taken together, the outstanding proposals currently provide: (1) That no stockholder or any other person would have the right to obtain or inspect lists of depositors in or borrowers from Federal stock associations or other confidential deposit or loan information, 50 FR 52,501; and (2) that the disclosure of membership lists of Federal mutual associations to any person except officers or other employees of an association in the ordinary course of business is generally prohibited. However, the disclosure of customer records by a Federal mutual association to its wholly owned service corporations or subsidiaries in the ordinary course of business is permitted if the lists are required to be used by the subsidiaries solely in the ordinary course of the business of either the subsidiary or the association and if disclosure is made under conditions designed to protect the confidentiality of the records so disclosed. 52 FR 25,880. Specifically, the Corporate Governance proposals would have conditioned any disclosure of membership lists on: (1) The existence of a written agreement under which the subsidiary receiving the records agreed to use the records solely in the ordinary course of business and further agreed not to sell or otherwise make the lists publicly available; and (2) the prior written approval of a Supervisory Agent of the terms of the confidentiality agreement. *Id.*

This latest version of Corporate Governance contained proposed § 554.9-2, which provided that members of, or depositors in, Federal mutual associations had the right to obtain and inspect the association's books and record pertaining solely to the member's or depositor's own savings or loan accounts and that Federal mutual associations may disclose membership lists to their wholly owned subsidiaries and to the association's officers or employees in the ordinary course of conducting the association's business. *Id.*

The comment period for Corporate Governance Proposal Part II ended on February 24, 1986. The end of the comment period for the Corporate Governance Proposal Parts III and IV, originally set at September 8, 1987, was extended until February 1, 1988. 52 FR 42,116 (Nov. 3, 1987). The Board has also considered comments filed after that date. The Board received fifty-three comments concerning proposed §§ 543.9-3, 544.9-2, and 545.131.

C. Discussion of Comments Submitted in Response to the Corporate Governance Proposal Parts II, III and IV

Nineteen commenters responded to proposed § 543.9-3(d) of Corporate Governance Part II, under which no stockholder or any other person would have the right to obtain or inspect lists of names and/or addresses of depositors or borrowers of their loan or savings account information. These commenters, asserting that the proposed section provided Federal mutual associations with a procedure to follow for disclosing such lists while Federal stock associations would be restricted from making such disclosures, argued that the distinction in treatment was without basis.

With respect to the rule set forth in proposed § 544.9-2(a)(2) that a Federal mutual association may release membership lists only to its officers or employees in the ordinary course of conducting the association's business, twenty-three commenters asserted that the provision was unduly restrictive. They explained that many associations use "contract vendors" or "third party vendors" to perform necessary services on behalf of the associations such as check printing, data processing and mailing, and that it was crucial to release at least minimal membership information to entities that perform such tasks. These commenters requested that the proposal be amended to include release not only to officers and employees, but also to those employed in the ordinary course of the association's business. In this way, the commenters claim, the confidentiality of the depositors records would still be preserved.

About twenty-five other commenters advocated a much more expansive disclosure provision. These commenters urged that access to the association's deposit records be granted to, for example, property tax payment services, preparers of annual mortgage statements, direct mail promoters, sellers of tax-deferred annuities and mutual funds, and providers of life and property insurance. Most commonly

¹ Section 545.131(e) gives members of a Federal mutual association the right to communicate with other members of the association only in the manner prescribed in paragraph (d). Paragraph (d) of § 545.131 establishes procedures for communications between members of a Federal mutual association. Finally, § 545.131(e) defines the term "improper communications" for purposes of paragraph (d) of that section. Section 544.5(b)(6), contained in Part 544, concerning the charter and bylaws of Federal mutual association, provides that communications between members shall be consistent with § 545.131. These sections are not proposed to be altered by the regulations proposed herein.

mentioned were companies that offer mortgage life insurance and group insurance, which, it was claimed by commenters, may protect the association by preventing loan foreclosures and benefit borrowers by providing such insurance at low group rates and offering the convenience of paying along with a loan payment. Moreover, at least five commenters stressed the importance of the fee income provided by these contract vendors and urged that its deprivation would ill-serve the goal of increasing the financial strength of Federal associations. Another commenter noted that the release of customer information to third parties should be left for the customer, not the Bank Board, to decide. Two commenters suggested that all third parties be allowed, pursuant to a written contract, to have access to all records in order to perform all functions that the association or its service corporation is authorized to perform. Another of these commenters stated that all those with a legitimate business need should be entitled to access membership information. Three commenters suggested that liberal disclosure rules would allow small institutions to compete with larger ones that can afford to offer some of these services in-house, and another noted that liberalizing disclosure rules would serve to remove the competitive imbalance between state and federally chartered associations with respect to customer record access. Four commenters stressed the importance of maintaining the confidentiality of customers of Federal associations, suggesting that confidentiality is currently assured by releasing minimal information to vendors.

With regard to the rule set forth in proposed § 544.9-2(a)(4) that an association's Supervisory Agent must pre-approve release of membership lists to wholly owned service corporations and subsidiaries, six commenters responded. All six commenters agreed that such an approval process was unnecessary, unduly burdensome, and time-consuming. The commenters variously suggested that appropriate solutions would be a confidentiality agreement whose terms were preapproved by the Board, or a requirement that all customer record requests be filed with the Board and automatically granted after expiration of a certain time period if not disapproved.

In addition, five commenters objected that the regulations as proposed appear to prohibit reporting by Federal associations to consumer reporting agencies, in violation, the commenters

stated, of Congressional intent expressed in, for example, the Fair Credit Reporting Act. One of these commenters claimed that this places Federal associations at a competitive disadvantage with commercial banks that do not operate under such strictures, because the credit reporting agencies will not sell credit information about prospective borrowers to financial institutions that do not report, and Federal associations will not be able to receive the names available from credit reporting agencies in order to solicit new accounts.

One commenter asked that the Board clarify whether it intends to make a distinction between only the names and addresses of customers and all other account and loan information contained in customer records. Another commenter asked that the Board decide whether its regulations on this issue should be phrased only in terms of a party's right to obtain customer records or whether the Board should accommodate an association's desire to turn over such records voluntarily to third parties.

D. Board Reconsideration of Issues

Based upon a thorough review of the comments submitted in response to the Corporate Governance Proposal Parts II, III, and IV, as well as upon consideration of other policy concerns, the Board has determined to revise its proposal concerning disclosure of customer records by Federal associations and to publish its new proposals for comment.²

Until now, the Board's regulations concerning the confidentiality and disclosure of customer records have been separately applicable to Federal stock associations and Federal mutual associations. The Board has made the determination that it is more efficacious for these rules to appear in one regulatory section, applicable to all Federal associations. This determination accords with the OGC opinions, previously mentioned, that, with regard

to the release of customer records, the interests of Federal mutual associations and Federal stock associations are similar as are the interests of depositors in stock associations and members of mutual associations.

The Board also has reconsidered the issue of allowing release of customer records only to wholly owned service corporations or subsidiaries of the Federal association. The Board believes that it may not be justifiable to have a policy that distinguishes between release by a Federal association of customer lists to its wholly owned service corporations or subsidiaries and release of customer lists to non-affiliated business entities that engaged in the same activities. The Board is cognizant of the view that such an expansion of the disclosure rules may serve to enhance the value of a Federal charter; it specifically requests public comment on this point.

The current system of review by Supervisory Agents of the circumstances under which a Federal association may disclose its customer records pursuant to current § 545.131, modified in the most recent proposal of § 544.9-2, also has been reconsidered by the Board. The supervisory review process has produced differing supervisory guidelines in this area resulting in a lack of uniformity in approach to disclosure of customer records by Federal associations in different districts. The Board also has re-evaluated the review process in light of many commenters' objections that it was unduly burdensome and time consuming. Accordingly, the Board has endeavored in this proposed rule to clarify the circumstances in which customer records may be disclosed.

The Board also has determined to retain in this proposed rule the principle that the prerogative to obtain and inspect a customer's own confidential records resides with the customer. The Board also responds to a commenter's suggestion that the right to obtain such records be distinguished from an association's right to release such records voluntarily. The Board is of the view that the right to obtain and inspect belongs only to a customer, and not to third parties. The decision to release customer records over the objection of customers is left to the Federal associations under strictly limited circumstances.

The Board has given much consideration and attention to the competing interests of customer privacy and Federal associations' business needs raised by the comments to the various Corporate Governance

² At this time, the Board is proposing a rule dealing solely with the issue of the confidentiality and release of customer records. Thus, in a companion document, the Board is proposing to withdraw only those current regulations that either conflict with or are redundant in light of the regulations proposed today. Current regulatory provisions concerning only peripherally related issues, such as communication between members of Federal mutual associations and access to records by shareholders of Federal stock associations, remain unaffected. In addition and by separate action, the Board withdraws those regulatory provisions proposed as part of Corporate Governance Parts II, III, and IV that concern the issue of confidentiality and release of customer records and are redundant or conflict with this proposed rule.

proposals. The Board understands that a Federal association cannot conduct its day-to-day business operations without freely releasing certain customer records to parties such as those who print checks and process customer mailings, whether they are actually in-house employees or third parties hired to perform such services. With observance of methods to safeguard customer confidentiality, as discussed below, the Board believes that customer records must be released to such third parties.

However, many commenters strongly advocated that Federal associations be afforded the opportunity to release customer records voluntarily to many different business entities, such as those offering mortgage life insurance, in the interest of the financial benefits of such transactions both to Federal associations and such business entities. In balancing the business concerns of the association with the privacy concerns of the customers, the Board is proposing the following compromise: a Federal association may freely release the names and addresses of each customer—i.e., customer identification—to any third party including third party vendors of services *unless* the customer affirmatively and in writing prohibits the association from doing so; *provided that* the Federal association has given actual notice of the customer's right to prohibit the release of customer identification and of the intent of the Federal association to release such identification.

Information consisting of names and addresses, however, in conjunction with other account records, is referred to as "customer records." As discussed in more detail below, customer records may only be released after the receipt of a customer's authorization procured by the Federal association or pursuant to certain exceptions.

While each customer would have the ability to prevent release of customer records and identification, the Board recognizes that there are overriding practical and legal concerns that mandate release of confidential customer records to certain parties and entities despite objection by the customer. A Federal association cannot conduct daily operations that entail the preparation and handling of customer information without allowing reasonable access to such records by employees or agents of the association. Similarly, a Federal association, in compliance with the Right to Financial Privacy Act, must be able to cooperate with the Board and Federal Home Loan Bank employees and agents who request customer records in order to perform

their duties with respect to Federal associations.

Further, as the commenters emphasized, Federal associations should be allowed to communicate freely with credit reporting agencies in order to conduct certain basic financial operations such as examining the credit history of loan applicants. Certain legal consideration such as the duty to respond to lawful subpoenas and to report to governmental bodies would also require release of confidential customer records when required.

Certain of these exceptions, however, must necessarily be accompanied by safeguards designed to ensure their confidentiality. Therefore, when it cannot be assumed that confidentiality of customer records will be maintained, the Board believes that such disclosures should be accompanied by agreements to protect the confidentiality of these records.

Adoption of this proposal would preempt state law concerning the release of customer identification and customer records by Federal associations.³ The Board has extensively reviewed state law concerning these related issues and has concluded that it varies widely. Moreover, state laws do not, for the most part, address the Board's concern about the need to balance customer privacy against the business requirements of Federal associations. Consequently, pursuant to its authority to regulate the operations of Federal associations, the Board is proposing the following regulations to preempt state law and exclusively govern the operations of Federal associations in this regard. See 12 U.S.C. 1464(a) (1982 and Supp. VI 1988); 12 CFR 545.1 (1988); see e.g., *Fidelity Fed. Sav. and Loan Ass'n v. de la Cuesta*, 458 U.S. 141, 164 (1983). The Board does, however, specifically request comment on whether it may be advisable to provide that state law governs disclosure instead of following this suggested approach.

E. Description of This Proposal

This proposed rule applies to customers, defined as depositors in, borrowers from, or other patrons of both Federal stock associations and Federal mutual associations. It addresses the issue of the release of information about customers but distinguishes between two types of such information: customer

identification, defined as a list of the names and addresses of customers; and customer records, which include not only the names and addresses of customers but also information about the contents and particulars of their savings or loan accounts or other financial transactions with the association.

The proposed rule can be summarized in the following manner: (a) With certain enumerated exceptions, only a customer of a Federal association, and no other person or entity, has the right to inspect and obtain a customer's own customer records; (b) Unless a customer affirmatively and in writing prohibits release of the customer *identification*, a Federal association may, in its discretion, voluntarily release customer identification to any person or entity, provided that any release of customer identification shall consist only of a complete list of all customers who have not objected to the release of their customer identification. Federal associations may not, therefore, release a partial or incomplete list of customer identification, such as, for example, a list of only depositors, or borrowers, or customers with account balances over \$50,000; and (c) With certain enumerated exceptions, a Federal association is prohibited from releasing its customer *records*, other than customer identification, unless the Federal association procures from the customer written authorization for such release. The obligation to inform the customer of his or her right to object to the release of customer identification and to obtain written authorization from the customer to release customer records is specifically imposed upon the Federal association. While the Board specifically requests comments on the methods available to Federal associations to implement this affirmative responsibility, the Board is proposing the following procedure.

As to the release of customer identification, associations must notify customers of the association's intent to release customer identification in a timely manner. In this context, the Board views "timely" as allowing a customer sufficient time to receive the notice, review it, consider the alternatives, and decide whether to object to the disclosure of his or her customer identification. Federal associations desiring to release customer identification may provide the notice to new customers at the time an account is opened, before a loan is made, or other financial transaction is entered into, and are authorized to release customer identification no sooner than thirty (30)

³ The Right to Financial Privacy Act of 1978, 12 U.S.C. 3401 *et seq.*, Pub. L. No. 95-630, Title XI, section 1100, 92 Stat. 3697, provides a federal standard with respect to the release of customer records to federal governmental authorities.

days thereafter. Written notice containing the opportunity to object to the release of customer identification must be provided to existing customers along with a self-addressed envelope needing no postage in which the customer can return his or her objection to the Federal association. Federal associations may release customer identification no sooner than thirty (30) days after providing existing customers with such notice and opportunity to object to the release of customer identification. If notice is mailed, the thirty days would begin from the date of mailing. In any event, Federal associations may not release customer identification for those customers that have provided written objection to such release.

As to the responsibility of associations to inform customers of the possible release of customer records, the Board also is proposing certain procedures requiring an association to procure a customer's informed consent before customer records are released.

No release of customer records is permitted unless a customer whose records are intended to be released is given notice that release is contemplated, that the customer need not approve the release, and that without the customer's express written authorization for release, the association will not disclose customer records, except in certain enumerated circumstances. Furthermore, the association must retain a copy of the customer's authorization for its records. In this way, associations may sell or make publicly available their customer records, and third parties can conduct direct mail solicitations aimed at customers of Federal associations in a manner that respects the privacy expectations of customers of Federal associations.

Accordingly, the Board proposes that associations may use a standardized notice and authorization form to solicit the consent to release customer records before such records are released. This document would be separate from any and all other documents that are provided to customers pursuant to law or regulation. Such a document would contain, for example, the following:

1. The definition of customer records;
2. A statement that the customer has the right to withhold consent to the release of his or her customer records by the Federal association;
3. A description of the types of businesses, organizations, or other persons or entities to whom customer records may be disclosed and the time period, not to exceed two years, in which such disclosures may be made;

4. A statement that the Federal association may seek to obtain reauthorization from the customer for the release of customer records after the expiration of that time period, or if release is contemplated to types of recipients other than those for which authorization is sought;

5. A statement that the customer may at any time provide the Federal association with written notice withdrawing the customer's prior consent to release customer records and how and to whom such notice must be given;

6. A statement as to the circumstances under which customer records may be released even when not authorized by the customer but required by law;

7. A statement authorizing the release of customer records; and

8. A space for the customer's signature and for the date the document was executed.

The Board's proposal permits associations desiring to release customer records to provide this document to the customer at the time an account is opened, before the customer becomes obligated for a loan, or at the time the customer enters into another form of financial transaction with the association. Federal associations that currently release customer records or that desire to release customer records pertaining to existing customers must provide the notice to each existing customer before customers records can be released. While the Board notes that there may be various methods available to accomplish this requirement, it believes that a mailing to all customers, including a self-addressed envelope needing no postage, would be the most expedient method. Such a document, for example, may be provided to the customer with the customer's monthly account statement. The Board specifically seeks comment on the financial cost of compliance with this requirement by Federal associations, on the effect such costs may have on the ability of Federal associations to disclose customer identification or records for business purposes or for a fee, and on the comparative effects such costs will have on large and small associations.

In proposing these requirements, the Board recognizes that circumstances may change in regard to the release of customer records, both from the perspective of the Federal association and of the customer. Therefore, the Board is proposing that at least every two years after the initial provision of the notice to customers, Federal associations desiring to release customer identification and records

shall mail to each customer new consent forms for the purpose of giving customers the opportunity to object to the release of customer identification and of obtaining reauthorization for the release of customer records. If reauthorization from the customer for release of customer records is not received, the Federal association shall no longer continue to release such customer records. Of course, associations may provide such notice more frequently than every two years.

The proposed form and requirements also reflect the Board's belief that customers must be informed not only of the consequences of their decision to consent to the release of customer records, but also of the intended use of such records. There are several methods available to achieve this requirement, such as requiring the disclosure of the names of the intended recipients of customer records, or requiring a general disclosure that the Federal association intends to release customer records to third parties. The Board believes an appropriate balance between these two alternatives is that Federal associations should specify in the notice document the type or nature of business(es) that may receive customer records from the Federal association, e.g., insurance companies, credit card companies, department stores, or marketing agencies. The Board believes this method would advise customers of the intended scope of release of customer records without unreasonably burdening Federal associations.

The Board is aware that alternatives to these approaches exist. For example, associations could be required to procure a customer's informed consent to the release of customer records each time the association intends to release such records and could be required to identify the intended recipient, the purpose of the release, and the date the records will be released. The Board specifically requests comments on this approach. The Board also seeks comment on whether the notice should be provided to each customer each time they enter into a transaction with the association (e.g., each time the customer opens a deposit account or takes out a loan) or whether one notice would be sufficient to cover all records of the customer during the stated time period.

The proposed regulation sets out exceptions to this general non-disclosure rule. In addition to disclosure to the customer or to those authorized by the customer, disclosure would be permitted to those employees or agents of Federal associations responsible for preparing or handling customer records;

officials, employees or agents of the Board, the Federal Savings and Loan Insurance Corporation, or a Federal Home Loan Bank in the exercise of their official duties; other financial institutions or consumer credit reporting agencies as part of a regular exchange of credit information; federal government agencies or entities requiring such information, reports, or returns pursuant to law; those parties who must be informed concerning the dishonor of a negotiable instrument; appropriate law enforcement authorities when an association reasonably believes it has been the victim of a crime; persons making demand pursuant to a lawful subpoena; and the association's bond or insurance company relative to a claim under the association's liability policy.

The proposal also provides that release of customer records to any person not expressly enumerated in this section is permissible only after the association receives the prior written approval of the Board. The Board believes that this exception should only apply in unusual and highly exceptional circumstances in which the ability to release customer lists is not contemplated by any other exceptions to the non-disclosure rule. The Board specifically asks for comment on the need to include this exception and, if included, on whether it should apply to the release of customer identification and records where the customer has acted to prohibit release, or whether it should only apply to the release of customer records where the customer, while not objecting to the release, has not affirmatively authorized release.

Because the continued confidentiality of customer records following release to the aforementioned excepted parties cannot always be assured, the proposed rule provides that the following parties must execute confidentiality agreements prior to the release of customer records: (1) Parties to whom a customer has authorized such release; (2) officers, employees, or agents of the Federal association responsible for preparing and handling customer records; (3) other financial institutions or credit reporting agencies; and (4) the association's bond or insurance companies. These confidentiality agreements must contain a statement of the specific use to be made of the records and prohibit disclosure by the third party except as required by law or in accordance with the exceptions set out in paragraphs (e) (3), (5), (7) and (8) as if these sections applied directly to the recipient of the records.

Additionally, the Board specifically requests comments with respect to

whether an exception to the nondisclosure rule should exist for the disclosure of customer records when state law, not otherwise preempted by Federal law or regulations, requires such disclosure to state governmental authorities in the lawful exercise of such governmental authority over the customer or other third party.

Finally, in order to avoid conflict with or repetition of current regulatory provisions dealing with the confidentiality and release of customer records, this rule proposes to delete such conflicting or repetitive provisions. Specifically, the proposed rule would delete paragraphs (a) and (b) of § 545.131 dealing with the disclosure of membership lists by a Federal mutual association and the right of inspection of a member's own records. It would also delete paragraph (d) of § 552.11, which contains a prohibition against release to stockholders of Federal stock associations of confidential depositor information. It would also amend paragraph (d) of § 545.141 to reflect the adoption of the disclosure procedures and limitations of § 545.132.

Initial Regulatory Flexibility Analysis

Pursuant to section 3 of the Regulatory Flexibility Act, 5 U.S.C. 603 (1982), the Board is providing the following initial regulatory flexibility analysis:

1. *Reasons, objectives, and legal basis underlying the proposed rule.* These elements are incorporated above in the **SUPPLEMENTARY INFORMATION** section.

2. *Small entities to which the proposed rule would apply.* The proposed rule would apply to all Federal associations without regard to size.

3. *Impact of the proposed rule on small entities.* The proposed rule would clarify the circumstances under which all Federal associations may disclose customer identification and records for business purposes and for a fee. The proposed rule, however, may have a disproportionate impact on small associations, since it may be more difficult for small associations to afford the costs of the notice requirements. This could diminish the ability of small institutions to profit from the sale of customers identification or records. The Board specifically requests comment on this issue in the preamble to the proposed rule.

4. *Overlapping or conflicting Federal rules.* As explained in the **SUPPLEMENTARY INFORMATION** section, the proposed rule is intended to streamline the Board's regulations governing a Federal association's release of its customer records. Other than the Right to Financial Privacy Act of 1978, 12 U.S.C. 3401 et seq. (1982 and

Supp VI 1988), which is expressly considered in these proposed regulations, there are no other known federal rules that duplicate, overlap, or conflict with this proposal.

5. *Alternatives to the proposed rule.* As alternatives to the proposed rule, the Board could retain the present requirement of prior Board or supervisory approval contained in section 545.131 for the release of customer records or the Board could adopt the revisions to sections 545.131, 543.9-3, and 544.9-2 as proposed in the Corporate Governance proposals. These alternatives are discussed in the preamble to the proposed regulation and comment is solicited on them.

List of Subjects

12 CFR Part 545

Accounting, Consumer protection, Credit, Electronic funds transfer, Investments, Manufactured homes, Mortgages, Reporting and recordkeeping requirements, and Savings and loan associations.

12 CFR Part 552

Reporting and recordkeeping requirements, Savings and loan associations, and Securities.

Accordingly, the Federal Home Loan Bank Board hereby proposes to amend Parts 545 and 552, Subchapter C, Chapter V, Title 12 Code of Federal Regulations, as set forth below.

SUBCHAPTER C—FEDERAL SAVINGS AND LOAN SYSTEM

PART 545—OPERATIONS

1. The authority citation for Part 545 continues to read as follows:

Authority: Sec. 5A, 47 Stat. 727, as added by sec. 1, 66 Stat. 256, as amended (12 U.S.C. 1425a); sec. 5, 48 Stat. 132, as amended (12 U.S.C. 1464); secs. 402-403, 407, 48 Stat. 1256-1257, 1260, as amended (12 U.S.C. 1725-1726, and 1730); Reorg. Plan No. 3 of 1947, 12 FR 4981, 3 CFR, 1943-48 Comp., p. 1071.

2. Amend § 545.131 by removing paragraphs (a) and (b); by redesignating existing paragraphs (c), (d), and (e) as the new paragraph (a), (b), and (c); and by revising the newly redesignated paragraphs (a) and (b)(5)(ii) to read as follows:

§ 545.131 Communications between members of a Federal mutual association.

(a) *Right of communication with other members.* A member of a Federal mutual association has the right to communicate, as prescribed in paragraph (b) of this section, with other members of the association regarding any matter related to the association's

affairs, except for "improper" communications, as defined in paragraph (c) of this section. The association may not defeat that right by redeeming a savings member's savings account in the association.

(b) *Member communication procedures.* * * *

(5) * * *

(ii) Notification that the association has determined not to mail the communication because it is "improper" as defined in paragraph (c) of this section;

* * *

3. Amend Part 545 by adding a new § 545.132 to read as follows:

§ 545.132 Disclosure of customer records.

(a) *Definitions.* For the purpose of this section:

(1) "Customer" means a depositor in, borrower from, and any other person patronizing Federal associations and utilizing the services offered by those associations.

(2) "Customer identification" means the original or any copy or summary of any document, including any evidence of a transaction conducted by means of an electronic terminal, that contains only a list of the names and/or addresses of all customers of a Federal association who have not objected to the release of their customer identification, or any data from which such information could be constructed.

(3) "Customer records" means the original or any copy or summary of any document or record of a Federal association, including any evidence of a transaction conducted by means of an electronic terminal, that contains any customer's names and/or addresses, and information concerning an individual customer's savings or loan accounts or the details of other types of transactions between the customer and the association, or any data from which such information could be constructed.

(4) "Person" includes an individual, partnership, corporation, association, trust, or any other legal entity organized under the law of any state or of the United States.

(5) "Financial institution" means any office of a bank, savings bank, industrial loan company, trust company, savings and loan, building and loan, or homestead association (including cooperative banks), credit union, or consumer finance institution, located in any state or territory of the United States, the District of Columbia, Puerto Rico, Guam, American Samoa, or the Virgin Islands.

(b) *Right to obtain and inspect customer's own customer records.* A customer of a Federal association or his

duly authorized agent has the right to obtain and inspect customer records pertaining solely to the customer's own savings account(s) or loan account(s) records, or records pertaining to other financial transactions with the association.

(c) *Disclosure of customer identification.* (1) A Federal association may disclose a customer's customer identification to any person, unless such customer has affirmatively prohibited such disclosure in writing; provided that the Federal association has given written notice to the customer of the intent of the Federal association to make such disclosures and of the customer's right to prohibit the release of the customer identification, including a plainly worded form which the customer may use to make such objection, and has provided the customer with a self-addressed envelope needing no postage with which to return the customer's objection to the release of customer identification.

(2) Any disclosure made pursuant to (c)(1) of this section shall be made no sooner than thirty (30) days after the customer received the notice, if the notice was given in person, or thirty days after the notice was mailed to the customer, and shall be limited to a complete list of all customers of the Federal association who have not prohibited the release of his or her customer identification pursuant to that section, and may include the addresses of such customers.

(d) *Disclosure of customer records.* Except as provided in paragraphs (b) and (e) of this section, a Federal association is prohibited from disclosing customer records to any person.

(e) *Exceptions.* Notwithstanding paragraph (d), a Federal association may disclose its customer records to the following:

(1) Any person to whom the customer has affirmatively authorized such disclosure in writing;

(2) Any officer, employee, or agent of a Federal association having the duty to prepare, examine, handle, or maintain customer information in the ordinary course of conducting the association's business, including, but not limited to, a certified public accountant engaged by the Federal association to prepare an independent audit;

(3) Any officer, employee, or agent of the Board, the Federal Savings and Loan Insurance Corporation, or a Federal Home Loan Bank for use solely in the exercise of his or her duties;

(4) A financial institution, commercial enterprise, or consumer reporting agency, when such disclosure is part of an exchange in the regular course of

business of credit information between a Federal association and another financial institution or commercial enterprise, directly or through a credit reporting agency;

(5) Persons to whom reports or returns must be made or information disclosed pursuant to Federal law or regulations including, but not limited to, the Internal Revenue Service, or any government authority acting pursuant to the Right to Financial Privacy Act of 1978, 12 U.S.C. 3401 *et seq.*, Pub. L. No. 95-630, Title XI, § 1100, 92 Stat. 3697;

(6) Persons to whom information is permitted to be disclosed under state law concerning the dishonor of a negotiable instrument;

(7) An appropriate law enforcement authority when the Federal association reasonably believes, pursuant to section 563.18(d) of this part, that it has been the victim of a crime or has a known factual basis for a belief that a crime has been committed;

(8) Persons making demand pursuant to a lawful subpoena, summons, warrant, or court order or in response to a subpoena from a federal or state grand jury served upon the Federal association;

(9) The association's bond or insurance companies when the association has information relative to a claim pursuant to its bond or director's and officer's liability insurance policy or other insurance coverage;

(10) Any person not expressly permitted by this section if the association receives the prior written approval of the Board, which may establish the terms and conditions governing such release.

(f) *Confidentiality agreement.* Prior to the release by a Federal association of its customer records authorized by paragraphs (e) (1), (2), (4) and (9) of this section, the association shall require intended recipients of customer records to execute an agreement stating the specific use to be made of the customer records and prohibiting subsequent disclosure of the customer records to a third party, except if such disclosure is required by law, or pursuant to the circumstances set forth in paragraphs (e) (3), (5), (7) and (8) of this section, and, if the recipient of the customer records is a credit reporting agency, subsequent disclosures may be made in the regular course of the agency's business.

(g) *Informed consent form and procedure.* (1) Before releasing any customer records pursuant to subparagraph (e)(1), an institution shall:

(i) Provide a copy of an "Informed Consent Form" to all new and existing

customers of the association. The consent form shall contain:

(A) The definition of customer records;

(B) A statement that the customer has the right to withhold consent to the release of his or her customer records by the Federal association;

(C) A description of the types of businesses, organizations, or other persons or entities to whom customer records may be disclosed and the time period, not to exceed two years, in which such disclosures may be made;

(D) A statement that the Federal association may seek to obtain reauthorization from the customer for the release of customer records after the expiration of that time period, or if release is contemplated, to types of recipients other than those for which authorization is sought;

(E) A statement that the customer may at any time provide the Federal association with written notice withdrawing the customer's prior consent to release customer records and how and to whom such notice must be given;

(F) A statement that customer records may be released pursuant to statute or regulation even when not authorized by the customer;

(G) A statement authorizing the release of customer records; and

(H) A space for the customer's signature and for the date the document was executed.

(i) Receive a signed and dated consent form from the customer; and

(iii) Retain a copy of each consent form in an appropriate file maintained for the customer providing the authorization.

(2) A Federal association shall fulfill the requirement that it obtain consent from its customers before disclosing customer records under paragraph (e)(1) of this section by providing a clear and conspicuous document containing the information set forth in (g)(1) of this section. The following complies with this requirement:

Authorization To Disclose Customer Records

[Customer Name]

[Account/Loan Number(s)]

Under applicable Federal law and regulations you have the right to provide or to refuse to provide [name of institution] with your consent to disclose all of the information [name of institution] maintains concerning your name, address, account balances, loans, or other financial activities. This information that pertains to all of your financial transactions is known as "customer records".

[Name of institution] desires to disclose information contained in your customer records during the next [period of time not to exceed two years] to [insert types of persons or entities to which the customer records are intended to be disclosed]. These persons or entities may contact you to offer you a product or service. These persons or entities have agreed, or will be required to agree, not to disclose this information to any other person or business, except as permitted by regulation, and have agreed that the customer records shall remain confidential. [Name of institution] may receive a fee for the release of customer records. In the event that the association wishes to disclose your customer records to persons or entities not described above or beyond the [state time period], the association will seek reauthorization.

[Name of institution] must seek your permission to disclose your customer records pertaining to deposits, loans, or other types of financial transactions with this association. Without your consent, [Name of institution] cannot disclose your customer records, except as provided for by regulation.

If you provide your consent to disclose your customer records now or in the future, you may withdraw your consent at any time. You may withdraw your consent by writing [name of institution] at the following address:

[Name of institution]
[Address of institution]
[Attn:]

If, after reading the following statement, you consent to the release of customer records, sign your name on the space provided and return this form to [name of institution].

Authorization

I have been informed of my right to withhold my consent for [name of institution] to release my customer records, and I have read the information printed above. I hereby provide my consent to [name of institution] to release my customer records to third persons, and understand that I may withdraw such consent at any time.
Name of customer _____
Date _____

(3) Federal associations desiring to continue to disclose customer records shall seek reauthorization from each customer for the release of customer records at least every two years after the initial authorization.

(4) Federal association shall not release any person's customer records pursuant to this paragraph and shall take such affirmative steps as may be necessary to ensure that such customer records are not released:

(i) Upon or following the second anniversary of the initial authorization

or the second anniversary of any subsequent reauthorization if the Federal association has not received a reauthorization, or

(ii) If at any time, the Federal association receives written notification of a customer's withdrawal of consent to release customer records, pursuant to paragraph (g)(5) of this section.

(5) A customer may, at any time after providing consent to permit disclosure of customer records, withdraw that consent by writing to the Federal association and informing it of the withdrawal of consent.

4. Amend section 545.141 by revising paragraph (d) to read as follows:

§ 545.141 Remote Service Unites (RSUs).

(d) *Privacy of account data.* A Federal association shall allow accountholders to obtain any information concerning their RSU accounts. Except for generic data or data necessary to identify a transaction, no Federal association may disclose account data to third parties other than the Board or its representatives except in accordance with § 545.132 of this part. Information disclosed to the Board will be kept in a manner to ensure compliance with the Privacy Act, 5 U.S.C. 552a. A Federal association may operate an RSU according to an agreement with a third party or shared computer systems, communications facilities, or services or another financial institution only if such third party or institution agrees to abide by this section as to information concerning RSU accounts in the Federal association.

PART 552—INCORPORATION, ORGANIZATION, AND CONVERSION OF FEDERAL STOCK ASSOCIATIONS

5. The authority citation for Part 552 continues to read as follows:

Authority: Sec. 5A, 47 Stat. 727, as added by sec. 1, 64 Stat. 256, as amended (12 U.S.C. 1425a); sec. 5B, 47 Stat. 727, as added by sec. 4, 80 Stat. 824, as amended (12 U.S.C. 1425b); sec. 2, 48 Stat. 128, as amended (12 U.S.C. 1462); sec. 5, 48 Stat. 132, as amended (12 U.S.C. 1464); secs. 401-403, 405-407, 48 Stat. 1255-1257, 1259-1260, as amended (12 U.S.C. 1724-1726, 1728, 1730); sec. 408, 82 Stat. 5, as amended (12 U.S.C. 1730a); Regn. Plan No. 3 of 1947, 12 FR 4981, 3 CFR, 1943-1946 Corp., p. 1071.

6. Amend § 552.11 by removing paragraph (d).

By the Federal Home Loan Bank Board.
John F. Ghizzoni,
Assistant Secretary.
[FR Doc. 89-2706 Filed 2-3-89; 8:45 am]
BILLING CODE 6720-01-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Chapter I

[Summary Notice No. PR-89-1]

Petition for Rulemaking; Summary of Petitions Received; Dispositions of Petitions Issued

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of petitions for rulemaking received and of dispositions of prior petitions.

SUMMARY: Pursuant to FAA's rulemaking provisions governing the application, processing, and disposition of petitions for rulemaking (14 CFR Part 11), this notice contains a summary of certain petitions requesting the initiation of rulemaking procedures for the amendment of specified provisions of the Federal Aviation Regulations and of denials or withdrawals of certain petitions previously received. The purpose of this notice is to improve the public's awareness of, and participation in, this aspect of FAA's regulatory activities. Neither publication of this notice nor the inclusion or omission of information in the summary is intended to affect the legal status of any petition or its final disposition.

DATE: Comments on petitions received must identify the petition docket number involved and must be received on or before: April 7, 1988.

ADDRESS: Send comments on any petition in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-10), Petition Docket No. _____, 800 Independence Avenue, SW., Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT: The petition, any comments received, and a copy of any final disposition are filed in the assigned regulatory docket and are available for examination in the Rules Docket (AGC-10), Room 915G, FAA Headquarters Building (FOB 10A), 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267-3132.

This notice is published pursuant to paragraphs (b) and (f) of § 11.27 of Part

11 of the Federal Aviation Regulations (14 CFR Part 11).

Issued in Washington, DC, on January 31, 1989.

Denise Donohue Hall,

Manager, Program Management Staff, Office of the Chief Counsel.

Petitions for Rulemaking

Docket No.: 24397.

Petitioner: The Association of Flight Attendants and The Joint Council of Flight Attendant Unions.

Regulations Affected: 14 CFR Parts 121 and 135.

Description of Petition/Disposition: The petitioners asked for flight and duty time limitations and rest requirements for flight attendants engaged in passenger-carrying operations. *Denied January 23, 1989.*

[FR Doc. 89-2626 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-13-M

14 CFR Part 39

[Docket No. 88-ASW-51]

Airworthiness Directives; Robinson Helicopter Company, Model R22 Series Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This notice proposes to adopt an airworthiness directive (AD) that would require repetitive preflight checks of the lower clutch actuator bearing assembly and replacement, as necessary, on Robinson Helicopter Company (RHC) Model R22 series helicopters. This proposed AD is prompted by reports of lower clutch actuator bearing failure in flight which could result in loss of power to the main rotor drive system and consequent loss of the helicopter.

DATES: Comments must be received on or before May 1, 1989.

ADDRESSES: Comments on the proposal may be mailed in duplicate to: Office of the Assistant Chief Counsel, FAA, Fort Worth, Texas 76193-0007 or delivered in duplicate to: Office of the Assistant Chief Counsel, FAA, Room 158, Building 3B, 4400 Blue Mound Road, Fort Worth, Texas. Comments must be marked: Docket No. 88-ASW-51.

Comments may be inspected in the Regional Rules Docket, Building 3B, Room 158, Office of Assistant Chief Counsel, between 8 a.m. and 4:30 p.m. weekdays, except Federal holidays.

The applicable technical information may be obtained from: Robinson Helicopter Company, 24747 Crenshaw Boulevard, Torrance, California 90505, or may be examined in the Regional Rules Docket.

FOR FURTHER INFORMATION CONTACT:

Mr. Timothy J. Dulin, Aerospace Engineer, ANM-143L, FAA, Northwest Mountain Region, Los Angeles Aircraft Certification Office, 3229 E. Spring Street, Long Beach, California 90806-2425; telephone (213) 988-5261.

SUPPLEMENTARY INFORMATION:

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments specified above will be considered by the FAA before taking action on the proposed rule. The proposal contained in this notice may be changed in light of comments.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Regional Rules Docket, Office of the Assistant Chief Counsel, Room 158, Building 3B, Federal Aviation Administration, 4400 Blue Mound Road, Fort Worth, Texas, for examination by interested persons. A report summarizing each FAA-public contact, concerned with the substance of the proposed AD, will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: Comments to Docket No. 88-ASW-51. The postcard will be date/time stamped and returned to the commenter.

There have been 27 reports of premature failure of the lower clutch actuator bearing assembly, part number (P/N) A181, bearing assembly lower sheave, installed on shaft and bearing assembly, P/N A007-3. Two of those failures have resulted in loss of power to the main rotor during flight. Since this condition is likely to exist or develop on other helicopters of the same type design, the proposed AD would require

a preflight check of the lower clutch actuator bearing assembly on Robinson Helicopter Company Model R22 series helicopters.

The regulations proposed herein would not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA has determined that this proposed regulation only involves approximately 386 helicopters at an approximate cost of \$1,100 per year per helicopter. Therefore, I certify that this action: (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal; and (4) if promulgated, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, and Safety.

The Proposed Amendment

PART 39—AIRWORTHINESS DIRECTIVES

Accordingly pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend § 39.13 of Part 39 of the Federal Aviation Regulations as follows:

1. The authority citation for Part 39 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1421, and 1423; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983); and 14 CFR 11.85.

2. By adding the following new AD:

Robinson Helicopter Company: Applies to all Model R22 series helicopters certificated in any category with lower clutch actuator bearing assembly, P/N A181, bearing assembly lower sheave (all dash numbers).

Compliance is required as indicated unless already accomplished.

To prevent lower clutch actuator bearing failure in flight which could result in loss of power to the main rotor drive system, accomplish the following:

(a) Check lower clutch actuator bearing

assembly, P/N A181, bearing assembly lower sheave (all dash numbers), before each flight in accordance with the following procedure:

(1) Check visible portion of the bearing for seal damage (e.g., cuts, distortions, grease extrusion, or any other indications of impending bearing failure); and

(2) Check temperature level on the lower and the upper clutch actuator bearing housing teletemps for comparison.

Note—Some types of bearing failures may not cause teletemp indication to rise.

(3) The checks required by this paragraph may be performed by a pilot properly trained to conduct the checks and must be recorded in accordance with FAR § 43.9.

(b) If bearing or seal damage is found, if either teletemp indication on lower clutch actuator bearing is 20 °F or greater above teletemp indication on upper clutch actuator bearing, or if an unusual lower clutch actuator bearing noise is detected during start-up, perform a detailed bearing inspection prior to further flight as follows:

(1) With the actuator assembly, P/N A051-1, in the belts loose position, remove the scroll, P/N A236-1, and fanwheel assembly, P/N B174-1, per Section 6.210 of the Robinson R22 Maintenance Manual.

(2) Disconnect the lower end of the actuator from the lower clutch actuator bearing assembly housing, P/N A181.

(3) Using fingertips, rotate the bearing housing and check for sound or feel of any roughness, scraping, or looseness. Visually inspect the bearing for seal damage, loss of lubrication or signs of heat damage.

(4) Carefully inspect the inner race of the bearing on the fanshaft. No movement or fretting is allowed between the inner race and the fanshaft.

(5) If any indication of impending bearing failure is found on this inspection, replace the shaft and bearing assembly, P/N A007-3. Consult the R22 Maintenance Manual for removal and replacement of the shaft and bearing assembly.

(c) A flickering clutch light during flight may be indicative of possible clutch actuator bearing failure. The flickering light should not be confused with its normal on-off belt retensioning in flight (on for 1 to 6 seconds, then off). Do not resume flight until cause of the flickering clutch light has been determined.

(d) An alternate method of compliance or adjustment of repetitive compliance times, which provides an equivalent level of safety, may be used if approved by the Manager, Los Angeles Aircraft Certification Office, ANM-100L, FAA, Northwest Mountain Region, 3229 E. Spring Street, Long Beach, California.

Issued in Fort Worth, Texas, on January 24, 1989.

L.B. Andriesen,

Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. 89-2628 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-13-M

DELAWARE RIVER BASIN COMMISSION

18 CFR Part 410

Proposed Amendment to Comprehensive Plan and Water Code of the Delaware River Basin; Proposed Rule Revision and Public Hearing

AGENCY: Delaware River Basin Commission.

ACTION: Proposed rule revision and public hearing.

SUMMARY: Notice is hereby given that the Delaware River Basin Commission will hold a public hearing to receive comments on proposed amendment to its Comprehensive Plan and Water Code in relation to water conservation performance standards for plumbing fixtures and fittings. The proposed amendment would revise a rule adopted by the Commission on January 13, 1988, and noticed in the January 22, 1988, issue of the Federal Register (53 FR 1751).

DATES: The public hearing is scheduled for Monday, March 20, 1989. A presentation on the proposed rule revision will begin at 1:30 p.m. and will be followed at 2:00 p.m. by the first of two hearing sessions. The second and final hearing session will begin at 7:00 p.m. Persons wishing to testify at the hearing are requested to register with the Secretary prior to the hearing. Written comments, received or postmarked by April 24, 1989, will be included in the hearing record.

ADDRESSES: Written comments should be submitted to Susan M. Weisman, Delaware River Basin Commission, P.O. Box 7360, West Trenton, New Jersey 08628. The public hearing will be held at the Holiday Inn King of Prussia, 260 Goddard Boulevard, King of Prussia, Pennsylvania.

FOR FURTHER INFORMATION CONTACT: Susan M. Weisman, Commission Secretary, Delaware River Basin Commission; Telephone (609) 883-9500.

SUPPLEMENTARY INFORMATION:

Background and Rationale

On January 13, 1988, the Delaware River Basin Commission adopted Resolution No. 88-2 which established Basinwide water conservation performance standards for plumbing fixtures and fittings installed in new construction and renovation. The regulation required that all water conservation performance standards for plumbing fixtures and fittings adopted by the four Basin States or political subdivisions within the Basin comply

with specified minimum standards for sink and lavatory faucets, shower heads, water closets, urinals and associated flushing mechanisms. Compliance dates were specified as were certain specialized fixtures and fittings not covered by the regulation. The regulation also required certification by manufacturers that their plumbing fixtures and fittings comply with the water conservation performance standards. In addition, Pennsylvania political subdivisions or their agencies seeking Commission permit approval or renewal must document that water conservation performance regulations consistent with the adopted standards have been adopted within their area of jurisdiction. Finally, periodic review of the performance standards was also required to allow for incorporation of more stringent water conservation performance standards as technology advances.

Subsection 2.1.5 (4) of the regulation required the Executive Director to conduct an initial review of the standards within a year to consider the modification of the current standard for water closets (a maximum of 3.5 gallons per flush) to require low consumption water closets (a maximum of 1.6 gallons per flush) effective January 1, 1990. A summary report documenting the results of this review was submitted to the Delaware River Basin Commission in January 1989. Based upon this review, the Commission is now proposing that the regulation be revised to require low-consumption water closets effective January 1, 1991.

The proposed requirement for low-consumption water closets would result in an estimated reduction of 42 million gallons per day within the Basin by the year 2020. This reduction in water use would also provide considerable economic savings for the Basin's residents. It is estimated that the requirement for low-consumption water closets could defer about \$250 million (1988 dollars) in additional capital costs for water supply and wastewater treatment facilities by the year 2020. Additional economic savings on water and sewer bills would also be realized by consumers employing low-consumption water closets rather than the more wasteful 3.5 gallons per flush products.

The proposal would require that all water conservation performance standards for plumbing fixtures and fittings adopted by the Basin States or political subdivisions within the Basin comply with the low-consumption water closet requirement by January 1, 1991.

The proposal would also modify the schedule for state or local compliance with the performance standards in the Commonwealth of Pennsylvania, which does not yet have statewide performance standards for plumbing fixtures and fittings. The other Basin States already have statewide standards.

Accordingly, the proposal encourages the Commonwealth of Pennsylvania to adopt water conservation performance standards for plumbing fixtures and fittings which comply with the Commission's standards by January 1, 1991. In the absence of Pennsylvania standards, the proposal would require the Commission to notify all municipalities within the Pennsylvania portion of the Basin of the requirement to adopt and enforce local regulations which comply with the Commission standards. Upon such notification by the Commission, municipalities would have one year to adopt local regulations.

The subject of the hearing will be as follows:

Amendment to the Comprehensive Plan and Water Code of the Delaware River Basin Relating to Water Conservation Performance Standards for Plumbing Fixtures and Fittings.

List of Subjects in 18 CFR Part 410

Water pollution control.

PART 410—[AMENDED]

Article 2 of the Water Code of the Delaware River Basin includes Commission policy relating to conservation, development and utilization of Basin water resources. It is proposed to:

Amend the Comprehensive Plan and Article 2 of the Water Code of the Delaware River Basin, which are referenced in 18 CFR Part 410, by the deletion of the existing subsection 2.1.5 and the substitution of a new subsection 2.1.5 to read as follows:

2.1.5 Water conservation performance standards for plumbing fixtures and fittings

(1)(a) All water conservation performance standards for plumbing fixtures and fittings adopted by any signatory state or political subdivision within the Delaware River Basin shall comply with the following minimum standards:

(i) For sink and lavatory faucets, maximum flow shall not exceed three gallons of water per minute when tested in accordance with American National Standards Institute (ANSI) A112.18.1M; and

(ii) For shower heads, maximum flow shall not exceed three gallons of water per minute when tested in accordance with ANSI A112.18.1M; and

(iii) For water closets and associated flushing mechanism, maximum volume shall not exceed an average of one and six-tenths

gallons per flushing cycle when tested in accordance with the hydraulic performance requirements of ANSI A112.19.2M and ANSI A112.19.6M; and

(iv) For urinals and associated flushing mechanism, maximum flow shall not exceed one and one-half gallons of water per flush when tested in accordance with the hydraulic performance requirements of ANSI A112.19.2M and ANSI A112.19.6M.

(b) Any water conservation performance standards adopted prior to the effective date of this regulation that are not in compliance with the provisions of (a) shall be amended or revised to comply with the provisions of (a) by January 1, 1991.

(c) The Commonwealth of Pennsylvania is encouraged to adopt water conservation performance standards for plumbing fixtures and fittings that comply with the provisions of (a) by January 1, 1991. In the absence of such regulations, the Commission shall notify all municipalities within the Pennsylvania portion of the Basin of the requirement to adopt and enforce local regulations that comply with the provisions of (a). Upon notification by the Commission, municipalities shall have one year to adopt such local regulations.

(2)(a) The performance standards of subsection (1) shall apply to plumbing fixtures and fittings installed in new construction and, where provided in state or local regulations, in existing structures undergoing renovations involving replacement of such fixtures and fittings.

(b) The performance standards of subsection (1) shall not apply to fixtures and fittings such as emergency showers, aspirator faucets, and blowout fixtures that, in order to perform a specialized function, cannot meet the standards specified in subsection (1).

(3) Manufacturers shall certify that their plumbing fixtures and fittings comply with the water conservation performance standards specified in subsection (1). Such certification shall be based on independent test results in accordance with ANSI standards.

(4) The Executive Director shall periodically review the performance standards and testing requirements set forth in subsection (1) to determine their adequacy in light of advances in technology for water conservation fixtures and fittings. The results of such reviews, including any recommendations for more stringent water conservation performance standards, shall be presented to the Commission.

(5) Municipalities of the Commonwealth of Pennsylvania seeking permit approval or renewal under § 3.8 of the Compact for water supply or wastewater discharge projects shall document that regulations consistent with subsection (1) have been adopted within their area of jurisdiction. Such documentation shall be a condition for permit approval or renewal.

(6) This regulation shall be effective immediately.

Delaware River Basin Compact, 75 Stat. 688.

Susan M. Weisman,

Secretary.

January 30, 1989.

[FR Doc. 89-2610 Filed 2-3-89; 8:45 am]

BILLING CODE 6360-01-M

DEPARTMENT OF DEFENSE

Office of the Secretary

32 CFR Part 169

[DoD Directive 4100.15]

Commercial Activities Program

AGENCY: Office of the Secretary, DoD.

ACTION: Proposed rule; correction.

SUMMARY: The Department of Defense published a supplemental notice of proposed rule on Thursday, February 4, 1988 (53 FR 3218). The notice contained an administrative error in the summary. This document is issued to correct the error. The first sentence states: "This rule proposes to reissue Part 169 to incorporate substantive changes required by Pub. L. 100-180, "National Defense Authorization Act for Fiscal Years 1988 and 1989" December 4, 1987, section 111 and Executive Order 12615, * * *." Section 111 should read 1111.

EFFECTIVE DATE: February 4, 1988.

FOR FURTHER INFORMATION CONTACT: Mr. Dom Miglionico, telephone 202-325-0537.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

February 1, 1989.

[FR Doc. 89-2661 Filed 2-3-89; 8:45 am]

BILLING CODE 3810-01-M

VETERANS ADMINISTRATION

38 CFR Part 21

Veterans Education; Procedural Due Process

AGENCY: Veterans Administration.

ACTION: Proposed regulations.

SUMMARY: The Veterans Administration (VA) has been reviewing regulations for the purpose of improving due process procedures. This proposal provides that in certain instances if the VA does not furnish claimants or beneficiaries with notice of the time limits within which they are required to act, those time limits do not apply until notice is provided. This proposal will provide increased due process to veterans and

eligible persons affected by these time limits.

DATES: Comments must be received on or before March 8, 1989. Comments will be available for public inspection until March 20, 1989.

ADDRESSES: Send written comments to: Administrator of Veterans Affairs (271A), Veterans Administration, 810 Vermont Avenue, NW., Washington, DC 20420. All written comments received will be available for public inspection only in the Veterans Services Unit, room 132 of the above address, between the hours of 8 a.m. to 4:30 p.m., Monday through Friday (except holidays) until March 20, 1989.

FOR FURTHER INFORMATION CONTACT: William G. Susling, Jr., Acting Assistant Director for Policy and Program Administration, Education Service, Department of Veterans Benefits, (202) 233-2668.

SUPPLEMENTARY INFORMATION: Various regulations are amended to provide that when the VA does not provide notice of regulatory time limits which must be met when submitting evidence to perfect a claim, or to challenge an adverse VA decision, the time limits will be extended. Other regulations are amended to show the effects of this change in policy.

The VA has determined that these proposed regulations do not contain a major rule as that term is defined in E. O. 12291, entitled Federal Regulation. The proposed regulations will not have a \$100 million annual effect on the economy, and will not cause a major increase in costs or prices for anyone. They will have no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The Administrator of Veterans Affairs has certified that these proposed regulations, if promulgated, will not have a significant economic impact on a substantial number of small entities as they are defined in the Regulatory Flexibility Act (RFA), 5 U.S.C. 601-612. Pursuant to 5 U.S.C. 605(b), the proposed regulations, therefore, are exempt from the initial and final regulatory flexibility analyses requirements of sections 603 and 604.

This certification can be made because the proposed regulations affect only individuals. They will have no significant economic impact on entities, i.e., small businesses, small private and nonprofit organizations and small governmental jurisdictions.

The Catalog of Federal Domestic Assistance number for the programs affected by these regulations are 64.111 and 64.117.

List of Subjects in 38 CFR Part 21

Civil rights, Claims, Education, Grant programs-education, Loan programs-education, Reporting and recordkeeping requirements, Schools, Veterans, Vocational education, Vocational rehabilitation.

Approved: December 22, 1988.

Thomas K. Turnage,

Administrator.

PART 21—[AMENDED]

38 CFR Part 21, Vocational Rehabilitation and Education, is proposed to be amended as follows:

1. In § 21.1032, paragraph (c) is revised, and an authority citation added to read as follows:

§ 21.1032 Time limits.

(c) *Failure to furnish claims or notice of time limit.* (1) The VA's failure to furnish any form or information concerning the right to file a claim or to furnish notice of the time limit for the filing of a claim will not extend the periods allowed for these actions.

(2) The VA's failure to furnish a veteran or serviceperson notice of the time limit within which evidence must be submitted to perfect a claim, or notice of the time limit within which to challenge an adverse VA decision shall extend the time limit for such action in accordance with the provisions of § 3.110 of this chapter.

Authority: 38 U.S.C. 3001, 3013)

2. In § 21.3032, paragraph (b) is revised, and an authority citation is added to read as follows:

§ 21.3032. Time limits.

(b) *Failure to furnish claim or notice of time limit.* (1) The VA's failure to furnish any form or information concerning the right to file a claim or to furnish notice of the time limit for the filing of a claim will not extend the periods allowed for these actions.

(2) The VA's failure to furnish an eligible person notice of the time limit within which evidence must be submitted to perfect a claim, or notice of the time limit within which to challenge an adverse VA decision, shall extend the time limit for such action in accordance with the provisions of § 3.110 of this chapter.

(Authority: 38 U.S.C. 3001, 3013)

3. In § 21.4131, paragraphs (e)(1)(i)(B), (e)(1)(ii)(B), (e)(1)(iii), (e)(2)(i) (B) and (C) are revised, and an authority citation is added to (e)(2)(i) (B) and (C) to read as follows:

§ 21.4131 Commencing dates.

(c) *Increase for dependent—chapter 34.*

(1) * * *

(i) * * *

(B) The VA receives any necessary evidence within 1 year of the date the VA requested the evidence and informed the veteran of the time limit for submitting it.

(ii) * * *

(B) The VA receives any necessary evidence within 1 year of the date the VA requested the evidence and informed the veteran of the time limit for submitting it.

(iii) The effective date will be the date the VA receives all necessary evidence, if that evidence is received more than 1 year from the date the VA requested it, and informed the veteran of the time limit for submitting it.

(2) * * *

(i) * * *

(B) Date notice is received of the dependent's existence if evidence is received within 1 year of the date the VA requested the evidence and informed the veteran of the time limit for submitting the evidence.

(C) Date the VA receives evidence if this date is more than 1 year after the date the VA requested the evidence and informed the veteran of the time limit for submitting it.

(Authority: 38 U.S.C. 3010(n))

4. In § 21.4136, paragraph (k)(1)(ii) is revised to read as follows:

§ 21.4136 Rates; educational assistance allowance; 38 U.S.C. Chapter 34.

(k) * * *

(1) * * *

(ii) The veteran submits the circumstances in writing to the VA within 1 year from the date the VA notifies the veteran that he or she must submit the mitigating circumstances, and inform the veteran of the time limit for submitting them.

(Authority: 38 U.S.C. 1780(a))

5. In § 21.4137, paragraph (h)(1)(ii) is revised to read as follows:

§ 21.4137 Rates; educational assistance allowance; 38 U.S.C. Chapter 35.

(h) * * *

(1) * * *

(ii) The eligible person submits the circumstances in writing to the VA within 1 year from the date the VA notifies the eligible person that he or she must submit the mitigating circumstances, and informs the eligible person of the time limit for submitting them.

(Authority: 38 U.S.C. 1780(a))

* * *

[FR Doc. 89-2690 Filed 2-3-89; 8:45 am]

BILLING CODE 8320-01-M

POSTAL SERVICE

39 CFR Part 111

Nonmailability of Locksmithing Devices

AGENCY: Postal Service

ACTION: Proposed rule.

SUMMARY: The Postal Service proposes to amend its regulations to reflect provisions of a recently enacted law making locksmithing devices nonmailable.

DATE: Comments must be received on or before March 8, 1989.

ADDRESS: Send written comments on the proposal to the Assistant General Counsel, Consumer Protection Division, Law Department, U.S. Postal Service, Washington, DC 20260-1144. Copies of all written comments received will be available for inspection and photocopying between 9 a.m. and 4 p.m. each business day, in Room 8347, Postal Service Headquarters, 475 L'Enfant Plaza West, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: John Ventresco, (202) 268-3085.

SUPPLEMENTARY INFORMATION: Section 7090 of Pub. L. 100-690, approved November 18, 1988, amended, among other things, chapter 30 of title 39, United States Code, by adding new section 3002a, entitled "Nonmailability of locksmithing devices." Section 3002a defines the term "locksmithing device," and makes any such device nonmailable unless mailed to specified persons or organizations with a business interest in such a device, such as lock manufacturers and locksmiths. Accordingly, the Postal Service proposes to amend Part 124 of its Domestic Mail Manual to reflect these statutory provisions. Certain editorial changes consistent with the statute and the earlier statute on nonmailable motor

vehicle master keys—section 3002 of title 39, United States Code—are also made to the regulation.

Although exempt by 39 U.S.C. 410(a) from the provisions of the Administrative Procedure Act regarding proposed rulemaking, 5 U.S.C. 553(b), (c), the Postal Service invites public comment on the following proposed revisions of Part 124 of the Domestic Mail Manual, which is incorporated by reference in the Code of Federal Regulations. See 39 CFR 111.1.

List of Subjects in 39 CFR Part 111

Postal Service.

PART 111—[AMENDED]

1. The authority citation for Part 111 continues to read as follows:

Authority: 5 U.S.C. 552(a); 39 U.S.C. 101, 401, 403, 404, 3001-3011, 3201-3219, 3403-3406, 3621, 5001.

124—NONMAILABLE MATTER—ARTICLES AND SUBSTANCES; SPECIAL MAILING RULES

124.41 [Amended]

2. In 124.41, in the first sentence, remove the second comma; remove the words "and motor vehicle master keys" and add in their place the words "motor vehicle master keys, and locksmithing devices".

124.45 [Amended]

3. In 124.45, change the heading to read "Motor Vehicle Master Keys and Locksmithing Devices (18 U.S.C. 1716A; 39 U.S.C. 3002 and 3002a)".

4. Remove §§ 124.451, 124.452, and 124.453, and add in their place the following:

124.451 Motor Vehicle Master Keys.

a. A motor vehicle master key is any key (other than the key furnished by the manufacturer with the motor vehicle, or the key furnished with a replacement lock, or an exact duplicate of such keys) designed to operate two or more motor vehicle ignition, door, or trunk locks of different combinations, including any pattern, impression, or mold from which such a master key can be made.

b. Any of the items constituting a motor vehicle master key, as defined in § 124.451a, and any advertising (see § 123.432) for the sale of any such item, are nonmailable, except when sent to:

(1) Lock manufacturers;

(2) Professional locksmiths;

(3) Motor vehicle manufacturers or dealers; or

(4) Federal, state or local government agencies.

c. No markings of any kind which would indicate the nature of the contents shall be placed on the outside wrapper or container of any parcel containing motor vehicle master keys.

124.452 Locksmithing Devices.

a. Any locksmithing device, as defined in § 124.452b, is nonmailable, unless such device is mailed to:

- (1) A lock manufacturer or distributor;
- (2) A bona fide locksmith;
- (3) A bona fide reposessor; or
- (4) A motor vehicle manufacturer or dealer.

b. A locksmithing device is:

(1) A device or tool (other than a key) designed to manipulate the tumblers in a lock into the unlocked position through the keyway of such lock;

(2) A device or tool (other than a key or a device or tool under § 124.452b(1)) designed for the unauthorized opening or bypassing of a lock or similar security device; and

(3) A device or tool designed for making an impression of a key or similar security device to duplicate such key or device.

124.454 [Revised]

5. Redesignate 124.454 as 124.453.

124.453 [Revised]

6. In redesignated 124.453, remove "124.452" and add in its place "124.451b or 124.452a".

An appropriate amendment to 39 CFR 111.3 to reflect these changes will be published if the proposal is adopted.

Fred Eggleston,

Assistant General Counsel, Legislative Division.

[FR Doc. 89-2607 Filed 2-3-89; 8:45 am]

BILLING CODE 7710-12-M

DEPARTMENT OF TRANSPORTATION

Coast Guard

46 CFR Parts 31, 71, and 91

[CGD 87-089]

RIN 2115-AD03

Cargo Gear Inspection and Testing Intervals

AGENCY: Coast Guard, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to amend its regulations on the interval for inspection and testing of cargo gear. This proposal would extend the interval to five years from the presently required four years. This action is taken to be consistent with standards of other countries so as to not place United

States Flag vessels at a competitive disadvantage by requiring more frequent inspection.

DATE: Comments must be received on or before April 7, 1989.

ADDRESSES: Comments may be mailed to the Executive Secretary, Marine Safety Council (G-LRA-2/3600) (CGD 87-089), U.S. Coast Guard, Washington, DC 20593-0001. Comments may be delivered to and will be available for inspection and copying at the Marine Safety Council, Room 3600, 2100 Second Street SW., Washington, DC 20593-0001 between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267-1477.

FOR FURTHER INFORMATION CONTACT:

Lieutenant Commander Stephen L. Johnson, Ship Design Branch, Office of Marine Safety, Security and Environmental Protection, (202) 267-2997.

SUPPLEMENTARY INFORMATION:

Interested persons are invited to participate in this proposed rulemaking by submitting written views, data, or arguments. Each comment should include the name and address of the person submitting the comments, reference the docket number of this notice (CGD 87-089) and the specific section of the proposal to which each comment applies, and give the reasons for comments. If acknowledgement of receipt of comments is desired, a stamped, self-addressed postcard or envelope should be enclosed.

All comments received before the expiration of the comment period will be considered before final action is taken on this proposal. The proposal may be changed in view of the comments received. No public hearing is planned but one may be held at a time and place to be set in a later notice in the *Federal Register* if requested in writing and it is determined that the opportunity to make oral presentations will aid the rulemaking process.

A regulatory information number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

Drafting Information

The principal persons involved in drafting this proposal are Lieutenant Commander Stephen L. Johnson, Project Manager, and Lieutenant Commander Don M. Wrye, Project Counsel, Office of Chief Counsel.

Discussion of Amendments

It is proposed that the quadrennial interval for inspection and testing of cargo gear in 46 CFR 31.37, 71.47, and 91.37 be changed to an interval of five years.

The existing Coast Guard regulations require vessel cargo gear to be inspected and tested quadrennially. This was consistent with the standards of other countries and international organizations. It was also consistent with the required interval for drydocking of 24 months, so the quadrennial cargo gear testing could be accomplished at every other regularly scheduled drydocking.

The international standard interval for cargo testing is being changed to five years. Also, the domestic requirement for drydocking intervals has been changed to twice within any five year period for vessels operating in salt water. The combined effect of these two changes create an economic disadvantage for U.S. vessel owners concerning cargo gear inspection. Foreign vessel owners will be able to conduct cargo gear testing every five years at regularly scheduled drydockings, while U.S. vessel owners are currently required to test cargo gear quadrennially. Not only do U.S. vessel owners have to conduct the tests more often, they can not coordinate them with drydocking visits to the shipyard. Therefore U.S. vessel owners either have to schedule extra shipyard visits or conduct testing more often than quadrennially if they are to coincide with drydockings.

In addition to quadrennial inspection and testing, an annual inspection of somewhat lesser scope is required. This and the good safety record of cargo gear indicate that extending the quadrennial interval to a five year interval will not have a detrimental effect on safety that would outweigh the savings in expense and time to owners.

E.O. 12291 and DOT Regulatory Policies and Procedures

These proposed regulations are considered to be non-major under Executive Order 12291 and nonsignificant under the Department of Transportation (DOT) regulatory policies and procedures (44 FR 11034; February 26, 1979). The economic impact of this proposal has been found to be so minimal that a full regulatory evaluation is unnecessary.

The following comprises a summary of the estimated costs savings to be associated with the proposed regulations. Approximately 1000 quadrennial cargo gear load tests

costing approximately \$5,000 each are performed each year on U.S. Flag vessels. Implementation of these changes would reduce the number of tests performed yearly by 20% which would reduce the cost to U.S. vessel owners by a total of approximately \$1,000,000 per year. These are preliminary estimates and comments on such costs are requested.

Regulatory Flexibility Act

Because the impact of this proposal is expected to be minimal, the Coast Guard certifies in accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)) that this proposal will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

This rulemaking imposes no new or additional information collection or recordkeeping requirements upon the public.

Federalism Implications

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Assessment

Those actions performed as a part of Coast Guard operations to carry out statutory authority in the areas of maritime safety which do not normally have a significant effect on the quality of the human environment are categorically excluded in accordance with Section 2.B.2., of Commandant Instruction M16475.1B. The Coast Guard has considered the environmental impact of the proposed regulations and concluded that, under section 2.B.2 of

Commandant Instruction M16475.1B, this rulemaking is categorically excluded from further environmental documentation.

List of Subjects

46 CFR Part 31

Cargo vessels, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 71

Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 91

Cargo vessels, Marine safety, Reporting and recordkeeping requirements.

For the reasons set forth in the preamble, 46 CFR Parts 31, 71, and 91 are proposed to be amended as follows:

PART 31—[AMENDED]

1. The authority citation for Part 31 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 3703, 5115, 8105; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp., p. 793; 49 CFR 1.46.

§ 31.37-1 [Amended]

2. In § 31.37-1(d), the numerical "4" is removed and the word "five" is added in its place.

§ 31.37-5 [Amended]

3. In § 31.37-5(a), the word "quadrennial" is removed and the words "fifth year" are added in its place.

§ 31.37-40 [Amended]

4. In § 31.37-40 (a) and (c), the word "four" is removed and the word "five" is added in its place.

PART 71—[AMENDED]

5. The authority citation for Part 71 is revised to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2113, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp., p. 793; 49 CFR 1.46.

§ 71.47-1 [Amended]

6. In § 71.47-1(d), the numeral "4" is removed and the word "five" is added in its place.

§ 71.47-5 [Amended]

7. In § 71.47-5(a), the word "quadrennial" is removed and the words "fifth year" are added in its place.

§ 71.47-40 [Amended]

8. In §§ 71.47-40 (a) and (c), the word "four" is removed and the word "five" is added in its place.

PART 91—[AMENDED]

9. The authority citation for Part 91 is revised to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR 1980 Comp., p. 277; E.O. 11735, 38 FR 21243, 3 CFR 1971-1975 Comp., p. 793; 49 CFR 1.46.

§ 91.37-1 [Amended]

10. In § 91.37-1(d), the numeral "4" is removed and the word "five" is added in its place.

§ 91.37-5 [Amended]

11. In § 91.37-5(a), the word "quadrennial" is removed and the words "fifth year" are added in its place.

§ 91.37-40 [Amended]

12. In § 91.37-40 (a) and (c), the word "four" is removed and the word "five" is added in its place.

Dated: November 4, 1988.

M.J. Schiro,

Captain, U.S. Coast Guard, Acting Chief,
Office of Marine Safety, Security and
Environmental Protection.

[FR Doc. 89-2713 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-14-M

Notices

Federal Register

Vol. 54, No. 23

Monday, February 6, 1989

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

DEPARTMENT OF AGRICULTURE

Commodity Credit Corporation

Counties Designated as Suitable for Growing Extra Long Staple Cotton

AGENCY: Commodity Credit Corporation, USDA.

ACTION: Notice of Counties Designated as Suitable for Growing Extra Long Staple Cotton During Marketing Year 1989; Correction.

SUMMARY: This action corrects a previous Federal Register document (FR Doc. 89-1326) on page 3098 of the issue for Monday, January 23, 1989, which listed the counties designated as suitable for growing extra long staple cotton during marketing year 1989. That notice incorrectly included the Texas county of Uvalde and excluded the Texas county of Ward. Accordingly, the following counties are designated as suitable for growing such cotton during marketing year 1989:

Arizona: Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, Santa Cruz, Yavapai, and Yuma. (La Paz County was created from Yuma County as a result of an action of the Arizona State legislature and is approved for ELS.)

California: Imperial and Riverside.

Florida: Alachua, Hamilton, Jefferson, Madison, Marion, Suwannee, and Union.

Georgia: Berrien and Cook.

New Mexico: Chaves, Dona Ana, Eddy, Hidalgo, Luna, Otero, and Sierra.

Texas: Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, Loving, Pecos, Presidio, Reeves and Ward.

Before March 31, 1989, as deemed appropriate by the Commodity Credit Corporation, additional counties may be designated as suitable for growing extra long staple cotton during marketing year 1989.

Authority: Sec. 103(h) of the Agricultural Act of 1949, as amended, 97 Stat. 494, as amended, (7 U.S.C. 1444(h)).

EFFECTIVE DATE: January 23, 1989.

FOR FURTHER INFORMATION CONTACT:

Charles V. Cunningham, Leader, Fibers Group, Commodity Analysis Division, USDA-ASCS, Room 3758 South Building, P.O. Box 2415, Washington, DC 20013 or call (202) 447-7954.

Signed at Washington, DC, on January 31, 1989.

Milton J. Hertz,

Executive Vice President, Commodity Credit Corporation.

[FR Doc. 89-2643 Filed 2-3-89; 8:45 am]

BILLING CODE 3410-05-M

COMMISSION ON CIVIL RIGHTS

Louisiana Advisory Committee; Agenda and Notice of Public Meeting

Notice is hereby given, pursuant to the provisions of the Rules and Regulations of the U.S. Commission on Civil Rights, that a meeting of the Louisiana Advisory Committee to the Commission will convene at 2:00 p.m. and adjourn at 5:00 p.m., on Friday, February 24, 1989, at the Hilton Hotel, 5500 Hilton Avenue, Baton Rouge, Louisiana. The purpose of the meeting will be to review Committee projects, discuss civil rights issues of current concern in the State, and plan future projects. Persons desiring additional information, or planning a presentation to the Committee, should contact Committee Chairperson Michael R. Fontham, or William F. Muldrow, Acting Director of the Central Regional Division (816) 426-5253, (TDD 816/426-5009). Hearing impaired persons who will attend the meeting and require the services of a sign language interpreter, should contact the Regional Division at least five (5) working days before the scheduled date of the meeting.

The meeting will be conducted pursuant to the provisions of the rules and regulations of the Commission.

Dated at Washington, DC, January 27, 1989.

Melvin L. Jenkins,

Acting Staff Director.

[FR Doc. 89-2608 Filed 2-3-89; 8:45 am]

BILLING CODE 5335-01-M

Texas Advisory Committee; Agenda and Notice of Public Meeting

Notice is hereby given, pursuant to the provisions of the Rules and Regulations of the U.S. Commission on Civil Rights, that the education subcommittee of the Texas Advisory Committee to the Commission will convene at 10 a.m. and adjourn at 1 p.m. on February 25, 1989, at the Dallas Hilton Inn (White Rock Room), 5660 North Central Expressway, Dallas, Texas 75206. The purpose of the meeting is to develop program plans for a project addressing issues of early childhood education in Texas.

Persons desiring additional information, or planning a presentation to the Committee, should contact subcommittee Chairperson, Dr. Denzer Burke or Philip Montez, Director of the Western Regional Division (213) 894-3437, (TDD 213/894-0508). Hearing impaired persons who will attend the meeting and require the services of a sign language interpreter, should contact the Regional Division office at least five (5) working days before the scheduled date of the meeting.

The meeting will be conducted pursuant to the provisions of the rules and regulations of the Commission.

Dated at Washington, DC, January 25, 1989.

Melvin Jenkins,

Acting Staff Director.

[FR Doc. 89-2609 Filed 2-3-89; 8:45 am]

BILLING CODE 5335-01-M

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Mid-Atlantic Fishery Management Council; Change of Public Hearing

AGENCY: National Marine Fisheries Services (NMFS), NOAA, Commerce.

ACTION: Change of date for a public hearing.

SUMMARY: The Mid-Atlantic Fishery Management Council scheduled public hearings for input on Amendment 8 to the Fishery Management Plan for the Atlantic Surf Clam and Ocean Quahog Fisheries published January 25, 1989 (54 FR 3637), and by this notice is changing the date for the hearing scheduled to be held in Galilee, Rhode Island. All other information remains the same.

FOR FURTHER INFORMATION CONTACT:

John C. Bryson, Executive Director, Mid-Atlantic Fishery Management Council, Room 2115 Federal Building, 300 South New Street, Dover, DE 19901, 302-674-2331.

The hearing previously scheduled for March 1, 1989, will be held March 8, 1989, 7:00 p.m., Dutch Inn, Great Island Rd., Galilee, Rhode Island.

Dated: February 1, 1989.

Alan Dean Parsons,

Acting Director, Office of Fisheries Conservation and Management, National Marine Fisheries Service.

[FR Doc. 89-2698 Filed 2-3-89; 8:45 am]

BILLING CODE 3510-22-M

COMMITTEE FOR PURCHASE FROM THE BLIND AND OTHER SEVERELY HANDICAPPED

Procurement List 1989; Addition

AGENCY: Committee for Purchase from the Blind and Other Severely Handicapped.

ACTION: Addition to procurement list.

SUMMARY: This action adds to Procurement List 1989 a commodity to be produced by workshops for the blind or other severely handicapped.

EFFECTIVE DATE: March 8, 1989.

ADDRESS: Committee for Purchase from the Blind and Other Severely Handicapped, Crystal Square 5, Suite 1107, 1755 Jefferson Davis Highway, Arlington, VA 22202-3509.

FOR FURTHER INFORMATION CONTACT: Beverly Milkman (703) 557-1145.

SUPPLEMENTARY INFORMATION: On November 18, 1988, the Committee for Purchase from the Blind and Other Severely Handicapped published notice (53 FR 46645) of proposed addition to Procurement List 1989, which was published on November 15, 1988 (53 FR 46018).

One comment was received from the current contractor for this sea marker. The commenter indicated that his firm's contract for this commodity constituted a significant portion of its business and was the significant element in its recovery strategy. He noted that the contract had generated a 15% increase in revenues. He said that because of the

investment capital required for start up, his firm would not receive a satisfactory financial return until the second and following years of production and, thus, adding the sea marker to the Procurement List would "jeopardize the firm's investment payback and anticipated profitability" in the future. The writer also expressed concern for the safety of workshop employees in performing the hazardous operations required to produce the item. He cited the need to handle material in close proximity to high temperatures and pressure.

The value of the firm's current contract for the Sea Marker represents about 11.2% of its total annual sales. This is not considered to be severe adverse impact. The possible loss of business and inability to recoup investment are inherent in the competitive bidding process. Even in the absence of action by the Committee, there is no assurance that the current contractor will receive a future competitive contract for the sea marker.

The only manufacturing function performed by the workshop which involves heat would be a hot stamping and heat sealing process. Manufacturing functions of this type have been performed satisfactorily and safely in workshops for many years and do not constitute severe hazards for blind or severely handicapped workers. A review of the material used to produce the sea marker reflects that none is listed as a hazardous material. After consideration of material presented to it concerning the capability of a qualified workshop to produce the sea marker at a fair market price and the impact of the addition on the current or most recent contractor, the Committee has determined that it is suitable for procurement by the Federal Government under 41 U.S.C. 46-48c and 41 CFR 51-2.6.

I certify that the following actions will not have a significant impact on a substantial number of small entities. The major factors considered for this certification were:

a. The action will not result in any additional reporting, recordkeeping or other compliance requirements.

b. The action will not have a serious economic impact on any contractors for the commodities listed.

c. The action will result in authorizing small entities to produce the commodities procured by the Government.

According, the following commodity is hereby added to Procurement List 1989:

Sea Marker, Fluorescein Dye
6850-270-9986

Beverly L. Milkman,
Executive Director.

[FR Doc. 89-2685 Filed 2-3-89; 8:45 am]

BILLING CODE 6820-33-M

COMMODITY FUTURES TRADING COMMISSION

Public Information Collection Requirement Submitted for Review to Office of Management and Budget

AGENCY: Commodity Futures Trading Commission.

ACTION: Notice of information collection.

SUMMARY: The Commodity Futures Trading Commission has submitted information collection 3038-0025, Practice by Former Members and Employees of the Commission to OMB for review and clearance under the Paperwork Reduction Act of 1980, 44 U.S.C. Chapter 35. The information collected pursuant to this regulation, which generally governs the practice by former members and employees of the Commission before this Commission, is intended to insure that the Commission is aware of any conflicts of interest that may exist.

ADDRESS: Persons wishing to comment on this information collection should contact Gary Waxman, Office of Management and Budget, Room 3228, NEOB, Washington, DC 20502, (202) 395-7340. Copies of the submission are available from Joseph G. Salazar, Agency Clearance Officer, (202) 254-9735.

Title: Practice by Former Members and Employees of the Commission, 17 CFR 140.735-10.

Control Number: 3038-0025.

Action: Extension.

Respondents: Former members and employees of the Commission.

Estimated Annual Burden: 1.2 hours.

Respondents	Regulation 17 CFR	Estimated no. of respond- ents	Annual re- sponses	Estimated August hours per response
Former CFTC members and Employees	\$ 140.735-10	12	12	.10

Issued in Washington, DC, on January 31, 1989.

Jean A. Webb,

Secretary of the Commission.

[FR Doc. 89-2618 Filed 2-3-89; 8:45 am]

BILLING CODE 6351-01-M

DEPARTMENT OF DEFENSE

GENERAL SERVICES ADMINISTRATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Federal Acquisition Regulation (FAR); Information Collection Under OMB Review

AGENCIES: Department of Defense (DOD), General Services Administration (GSA), and National Aeronautics and Space Administration (NASA).

ACTION: Notice.

SUMMARY: Under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. Chapter 35), the Federal Acquisition Regulation (FAR) Secretariat has submitted to the Office of Management and Budget (OMB) a request to review and approve an extension of a currently approved information collection.

ADDRESS: Send comments to Ms. Eyvette Flynn, FAR Desk Officer, Room 3235, NEOB, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: Ms. Linda Klein, Office of Federal Acquisition and Regulatory Policy, (202) 523-3775.

SUPPLEMENTARY INFORMATION:

a. *Purpose.* The series of standard forms covering contractor's inventories (SF 1423-1434) are essential for reporting, redistribution, and disposal of excess Government property at contractor plants (upon contract completion) and contractor termination inventory in support of contractor termination settlement proposals.

The contractor who is accountable for the property or who is submitting a termination settlement proposal is responsible for completing the inventory schedules.

These inventory schedules are the only means by which contractors report

excess contractor inventory, and by which the Government is able to achieve screening, redistribution and disposal of such property. They are also the only means of contractors supporting the inventory portion of their termination settlement proposals, and accounting for Government property in their possession. Thus, this information is not available to those requiring it from any other source.

A variety of activities utilize these inventory schedules. Thus, the Termination Contracting Officer and the cognizant audit agency use the schedules in evaluating the termination charges being claimed under terminated Government contracts. The Property Administrator of the contract administration office uses the schedules to ensure that the contractor has accounted for all Government property in its possession.

In addition, screening activities of the owning agency as well as GSA and other Federal agencies authorized to acquire such property also use the schedules for effecting redistribution of the property within the Government. Eligible donees, under the donation program similarly use the schedules for screening purposes. Finally, the cognizant plant clearance office uses the schedules for effecting disposition of any items determined to be surplus to the Government's requirements.

b. *Annual reporting burden:* The annual reporting burden is estimated as follows: Respondents, 12,500; responses per respondent, 4; total annual responses, 50,000; hours per response, 1; and total response burden hours, 50,000.

Obtaining Copies of Proposals: Requester may obtain copies from General Services Administration, FAR Secretariat (VRS), Room 4041, Washington, DC 20405, telephone (202) 523-4755. Please cite OMB Control No. 9000-0015, Contractor Inventory Schedule forms.

Dated: January 30, 1989.
Margaret A. Willis,
FAR Secretariat.

[FR Doc. 89-2613 Filed 2-3-89; 8:45 am]

BILLING CODE 6820-61-M

DEPARTMENT OF DEFENSE

Office of the Secretary

Availability of Change 3 to DoD 5025.1-I, "DoD Directives System Annual Index"

ACTION: Notice.

SUMMARY: This notice is to inform the public and U.S. Government Agencies other than the Department of Defense of the availability of Change 2 to DoD 5025.1-I, January 1988 edition. The Change may be purchased from the following organizations:

National Technical Information (NTIS),
5285 Port Royal Road, Springfield,
Virginia 22161, telephone number
(703) 487-4600;

OR

U.S. Naval Publications and Forms
Center (NPFC), 5801 Tabor Avenue,
Attention: Code 1062, Philadelphia,
Pennsylvania 19120-5099, telephone
number (215) 697-3321.

The NTIS accession number for
Change 3 is PB89 143069; NPFC
identifies it as Change 3 to DoD 5025.1-I.

FOR FURTHER INFORMATION CONTACT:
Ms Linda Bynum, Correspondence and
Directives Directorate, Directives
Division, Room 2A286, the Pentagon,
Washington, DC 20301-1155, telephone
number (202) 697-4111.

L.M. Bynum,

Alternate OSD Federal Register Liaison
Officer, Department of Defense.

February 1, 1989.

[FR Doc. 89-2662 Filed 2-3-89; 8:45 am]

BILLING CODE 3810-01-M

Department of the Army

Intent Chemical Stockpile Disposal Program; Umatilla Depot Activity, OR

Intent to prepare an Environmental
Impact Statement (EIS) and to initiate
the public scoping process for the
construction and operation of a
chemical munitions disposal facility at
Umatilla Depot Activity, Oregon.

AGENCY: Department of the Army, DOD.

ACTION: Notice of intent.

SUMMARY: This announces the Notice of Intent to prepare an EIS on the potential impact of the design, construction, operation and closure of the proposed chemical agent demilitarization facility at Umatilla Depot Activity, Oregon. The proposed facility will be used to demilitarize all chemical agents and munitions currently stored at the Umatilla Depot Activity. Potential environmental impacts will be examined for several locations of the on-site incineration facility and "no action" alternatives. The "no action" alternative is considered to be deferral of demilitarization with continued storage of the agents and munitions at Umatilla Depot Activity.

SUPPLEMENTARY INFORMATION: In its Record of Decision (53 FR, No. 38, pp. 5816-17) for the Final Programmatic Environmental Impact Statement on the Chemical Stockpile Disposal Program, the Department of the Army selected on-site disposal by incineration at all eight chemical munitions storage sites within the continental United States as the method by which it will destroy its lethal chemical stockpile. In compliance with the National Environmental Policy Act (NEPA), section 102(2)(c), the Army determined that an EIS will be prepared to assess the site-specific health and environmental impacts of on-site incineration of chemical agents and munitions at Umatilla Depot Activity. The first phase of this effort will entail the collection and analyses of detailed site-specific information to ensure that the programmatic preferred alternative (on-site incineration) remains valid for Umatilla Depot Activity. A separate report summarizing this effort will be published prior to preparation of the draft EIS for Umatilla Depot Activity. The draft EIS should be available in the spring of 1990. Upon completion of the draft EIS, public notice of its availability for review will be announced and interested persons may provide comment on that documentation.

Notice of Public Meeting

Notice is further given of the Army's intention to initiate the scoping process to aid in determining the significant issues related to the proposed action at Umatilla Depot Activity. Public, as well as Federal, State and local agency, participation and input are desired. An initial scoping meeting will be held on February 15, 1989, at 7:00 p.m. at the Armand Larive Junior High School auditorium in Hermiston, Oregon. Interested individuals, government agencies and private organizations are encouraged to attend and submit

information and comments for consideration by the Army.

FOR FURTHER INFORMATION CONTACT:

Program Manager for Chemical Demilitarization, ATTN: SAIL-PMI (Ms. Marilyn Tischbin), Aberdeen Proving Ground, Maryland 21010-5401. Individuals desiring to be placed on a mailing list to receive additional information on the public scoping process and copies of the draft and final EIS should contact the Program Manager at the above address.

Lewis D. Walker,

Deputy for Environment, Safety and Occupational Health OASA (J&L).

[FR Doc. 89-2665 Filed 2-3-89; 8:45 am]

BILLING CODE 3710-08-M

Army Science Board; Closed Meeting

In accordance with section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), announcement is made of the following Committee Meeting:

Name of the Committee: Army Science Board (ASB).

Date of Meeting: 22 February 1989.

Time of Meeting: 0800-1700 Hours.

Place: The Pentagon, Washington, DC.

Agenda: The Army Science Board's Technical Review of the Army's handguns will meet to hear briefings by the various Program Managers' offices. An executive session will follow at which time a letter report will be discussed and drafted by the panel. This meeting will be closed to the public in accordance with section 552b(c) of Title 5, U.S.C., specifically subparagraph (1) thereof, and Title 5, U.S.C., Appendix 2, subsection 10(d). The classified and unclassified matters and proprietary information to be discussed are so inextricably intertwined so as to preclude opening any portion of the meeting. Contact the Army Science Board Administrative Officer, Sally Warner, for further information at (202) 695-3039 or 695-7046.

Sally A. Warner,

Administrative Officer, Army Science Board.

[FR Doc. 89-2670 Filed 2-3-89; 8:45 am]

BILLING CODE 3710-08-M

Army Science Board; Partially Closed Meeting

In accordance with section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), announcement is made of the following Committee Meeting:

Name of the Committee: Army Science Board (ASB).

Dates of Meeting: 28 February and 1 March 1989.

Time: 0800-1800 hours, 28 February (Open); 0800-1000 hours, 1 March (Open); 1000-1800 hours, 1 March (Closed).

Place: The Pentagon, Washington, DC.

Agenda: The Army Science Board's '89 Summer Study on Improving Battlefield Survivability of the Army Command and Control System will hold its first meeting. Included in the meeting will be briefings on an overview of the Army Tactical Command Control System, common support programs, and communications systems. The open portions of the meeting are open to the public. Any interested person may attend, appear before, or file statements with the committee at the time and in the manner permitted by the committee. The closed portions of the meeting are closed to the public in accordance with section 552b(c) of Title 5, U.S.C., specifically subparagraph (1) thereof, and Title 5, U.S.C., Appendix 2, subsection 10(d). The ASB Administrative Officer, Sally Warner, may be contacted for further information at (202) 695-3039 or 7046.

Sally A. Warner,

Administrative Officer, Army Science Board.

[FR Doc. 89-2671 Filed 2-3-89; 8:45 am]

BILLING CODE 3710-08-M

Army Science Board; Closed Meeting

In accordance with section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), announcement is made of the following Committee Meeting:

Name of the Committee: Army Science Board (ASB).

Date of Meeting: 1 March 1989.

Time of Meeting: 1300-1700 Hours.

Place: The Pentagon, Washington, DC.

Agenda: The Army Science Board Ad Hoc Subgroup for Tactical Explosive Systems (TEXS) will hold its eighth meeting. The purpose of the meeting is to finalize the TEXS report. The meeting is closed to the public. The classified and unclassified matters and proprietary information to be discussed are so inextricably intertwined so as to preclude opening any portion of the meeting. Contact the Army Science Board Administrative Officer, Sally Warner, for further information at (202) 695-3039 or 695-7046.

Sally A. Warner,

Administrative Officer, Army Science Board.

[FR Doc. 89-2672 Filed 2-3-89; 8:45 am]

BILLING CODE 3810-08-M

Corps of Engineers, Department of the Army**Construction Productivity Advancement Research Program (CPAR)**

AGENCY: Corps of Engineers, Department of the Army, DOD.

ACTION: Notice of availability.

SUMMARY: The purpose of this notice is to inform potential applicants of a program of cost-shared research, development and technology transfer (R&D) projects between the U.S. Army Corps of Engineers (Corps) and the U.S.

Construction Industry. The purpose of the Construction Productivity Advancement Research (CPAR) Program is to assist the U.S. Construction Industry in enhancing its productivity and domestic and international competitive position through the development and reduction-to-practice of advanced technologies, materials and construction management systems.

DATES: Effective date is February 1, 1989. Proposals will be accepted until March 15, 1989.

ADDRESS: Proposals should be submitted to the Corps laboratories identified in the "CPAR Guidelines for Participation", dated January 1989. Copies of the Guidelines may be obtained by writing to: HQUSACE, Attn: CERD-C; 20 Massachusetts Avenue NW., Washington, DC 20314-1000, or by calling (202) 272-0257.

FOR FURTHER INFORMATION CONTACT: Mr. Jesse A. Pfeiffer, Jr., P.E.; HQUSACE, CERD-C; 20 Massachusetts Avenue NW., Washington, DC 20314-1000, or call (202) 272-1846 or 272-0257.

SUPPLEMENTARY INFORMATION: CPAR is a cost-shared partnership between the Corps, the U.S. Construction Industry (contractors, equipment and material suppliers, architects, engineers, financial organizations), academic institutions, non-profit organizations and other groups who are interested in enhancing construction productivity and competitiveness. CPAR was created to help the Construction Industry regain its competitive edge nationally and internationally by building on the foundation of the existing Corps Construction R&D Program and laboratory resources through an expansion and leveraging effect that cost-shared partnerships provide. The objective of CPAR is to facilitate research, development and application of advanced technologies through cooperative R&D, field demonstration, licensing agreements and other means of technology transfer and reduction-to-practice. Advancing the productivity and competitiveness of the U.S. Construction Industry will provide savings in construction costs for the Government and U.S. industries, and result in a boost to the U.S. economy in general. R&D efforts conducted under CPAR will be based on topics included in the Corps Construction R&D Program and topics suggested by the Construction Industry that can be effectively addressed by a partnership and benefit both the Corps and the Construction Industry.

Participation in CPAR is open to any U.S. private firm, including corporations,

partnerships, limited partnerships and industrial development organizations; public and private foundations; academic institutions; non-profit organizations; units of State and local governments; and others who have interest in and the capability to address CPAR objectives. As provided by law, special consideration will be given to small business firms and consortia involving small business firms. Preference will be given to business units located in the United States that agree to substantially manufacture the products domestically. Consideration will be given to a potential partner that is subject to the control of a foreign company or government if that foreign government permits U.S. agencies, organizations, or other persons to enter into cooperative research and development agreements and licensing agreements.

The cost of each CPAR project will be shared by the Corps and the Construction Industry partner(s). Specific cost-sharing terms will be negotiated for each proposed project prior to submission of the proposal to Headquarters, U.S. Army Corps of Engineers (HQUSACE) for approval. "In-kind" services and/or use of facilities may be considered in arriving at a cost-sharing agreement. As required by law, not more than fifty (50) percent of the cost of a CPAR project will be provided by the Corps and not less than five (5) percent of the Construction Industry partner's share of the cost must be paid in cash. The Corps may contribute personnel, services, facilities, property, intellectual property and money. The Construction Industry partner(s) may contribute personnel, services, facilities, property, intellectual property and money. No costs previously incurred by the Corps or the Construction Industry partner(s) on the subject matter of the CPAR project may be recovered in the cost-sharing agreement.

An agreement specific to each project will be negotiated between the Corps and the Industry partner(s). The agreement will contain, in addition to the cost-sharing terms, all other conditions and responsibilities necessary to complete the project, including rights to inventions. In addition to having the authority to grant the partner(s) licenses to Government-owned or jointly-developed inventions, the Corps has authority to waive, in whole or in part, the right of ownership to any invention made by the partner(s) or employees of the partner(s) during the project, subject to reservation by the Government of a non-exclusive, irrevocable, paid-up license to practice

the invention or have the invention practiced by or on behalf of the Government.

Initially CPAR will focus on four major areas: design improvement, improved construction site productivity, advanced materials and technology transfer management. Any idea for improving construction productivity will be considered, however.

Design Improvement

- Total Integrated Design Systems.
- Computer Aided Engineering Tools.
- Computer-Aided Design Systems.
- Advanced Site Investigation Technology.
- Knowledge-Based Cost Systems.
- Expert Systems/Artificial Intelligence.
- Materials Selection Systems.

Improved Construction Site Productivity

- Computer-Aided Construction.
- Automated Construction/Robotics.
- Automated Inspection and Quality Control.
- Advanced Excavating and Tunneling.
- Marine Construction.
- Cold Weather Construction.
- Construction Management.
- Expert Systems.
- Materials Handling.

Advanced Materials

- High-Performance Cementitious Materials.
- Structural Polymers.
- Advanced Ceramics.
- Metal Matrix Composites.
- Coatings.
- Geomodifiers/Geotextiles.
- Adhesives/Fasteners.

Technology Transfer Management

- User-Based Technology Transfer Processes.
- Field Demonstration Projects.
- Technical Support Services.
- Patents and Licensing Agreements.
- Software Packages.
- Courses and Workshops.
- Information Exchange Systems.
- Participation With Specification and Building Code Organizations.

Proposal Review Process

Proposals received by the Corps laboratories which meet CPAR criteria may be discussed and further developed, as necessary, by the laboratory and Construction Industry partner(s). The following criteria will be used to evaluate the proposals:

1. Potential Impact on U.S. Construction Industry Productivity

High—Technological advancement which would supplant current technology and will have strong impact on U.S. Construction Industry productivity.

Med—Technological advancement which significantly improves current technology and enhances U.S. Construction Industry productivity.

Low—Technological advancement which would upgrade current standard technology with limited but beneficial impact on U.S. Construction Industry productivity.

2. Potential Impact on Corps of Engineers Mission

High—Technological advancement which would supplant current Corps technology and will have strong impact on the Corps mission.

Med—Technological advancement which significantly improves current Corps technology and enhances the Corps mission.

Low—Technological advancement which would upgrade current standard Corps technology with limited but beneficial impact on the Corps mission.

3. Ease of Adoption

High—Technology provides productivity improvement with minimal additional equipment, training, materials and operating costs.

Med—Technology provides productivity improvements, but at the expense of some additional equipment, material, and training costs.

Low—Technology provides productivity improvement, but with substantially higher costs of training, materials, and equipment.

4. Anticipated Chance of Success of R & D Effort

High—Little risk, such as innovative application of current research.

Med—Some risk, chance of success similar to exploratory development.

Low—High risk, chance of success similar to basic research.

5. Project Duration

High—Project can be completed in 2 years or less.

Med—Project can be completed in 4 years or less.

Low—Project will require more than 4 years to complete.

6. R & D Investment

High—Project will obligate the Corps to spend less than \$200,000 in any funding year.

Med—Project will obligate Corps to spend between \$200,000 and \$400,000 in any funding year.

Low—Project will obligate Corps to spend more than \$400,000 in any funding year.

7. Technology Transfer Potential

High—Proposal provides a significant and effective plan which will facilitate wide-scale Federal and non-Federal exploitation of the new technology.

Med—Proposal provides a plan that envisions some effective Federal and non-Federal exploitation of the new technology.

Low—Proposal provides a plan that envisions limited, but beneficial Federal and non-Federal exploitation of the new technology.

After discussions between the laboratory and the Construction Industry partner(s), a proposal summary will be prepared which will contain all expected costs and cost-sharing arrangements, time needed to complete, specific end product, proposed technology transfer/marketing plan, and expected benefits for the Government and the Construction Industry.

Corps laboratories will submit their recommended proposal summaries to HQUSACE (CERD-C) for consideration under the CPAR Program. An initial screening will be made to ensure that all proposals meet the minimum criteria of being fully cost-shared and appropriate to the CPAR Program. The CPAR proposals will be reviewed and selected by the CPAR Executive Committee in HQUSACE. The CPAR Executive Committee is composed of senior-level HQUSACE managers. The Director of Civil Works, HQUSACE, will act on the recommendations of the CPAR Executive Committee in approving the program.

All information (data) furnished by the Construction Industry partner(s) will be used for evaluation purposes only and will be safeguarded from unauthorized disclosure in accordance with applicable laws. Classified information (data) will be handled in accordance with Army regulations. Additional Requirements

Applicants are reminded that a false statement may be grounds for denial or termination of funds and grounds for possible punishment by a fine or imprisonment. Except where declared by law or approved by the head of agency, no award of Federal funds shall be made to an applicant who is delinquent on a Federal debt until the delinquent account is made current or satisfactory arrangements are made between affected agencies and the debtor. No award will be made to a debarred or suspended contractor.

Classification

This document is not a major rule requiring a regulatory analysis under Executive Order 12291 because it will not have an annual impact on the economy of \$100 million or more, nor will it result in a major increase in costs or prices for any group, nor have a significant adverse effect on competition, employment, investment, productivity, innovation, or on the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets. It is not a major Federal action requiring an environmental assessment under the National Environment Policy Act. The CPAR Program does not involve the mandatory payment of any matching funds from a State or local government, and does not affect directly any State or local government. Accordingly, the Corps determined that Executive Order 12372 is not applicable to CPAR. This notice does not contain policies with Federalism implications sufficient to warrant preparation of a Federalism assessment under Executive Order 12612. CPAR is being carried out under the authority of Section 7, Water Resources Development Act of 1988 (Pub. L. 100-676).

Dated: January 31, 1989.

Frank R. Finch,

Colonel, Corps of Engineers, Executive Officer, OASA(CW).

[FR Doc. 89-2631 Filed 2-3-89; 8:45 am]

BILLING CODE 3710-08-M

DEPARTMENT OF EDUCATION

[CFDA No.: 84.129]

Rehabilitation Long-Term Training Program; Inviting Applications for New Awards for Fiscal Year (FY) 1989

Purpose of Program: This program provides grants to States and other public and private agencies and organizations, including institutions of higher education, to increase the supply of qualified personnel for employment in public and private agencies involved in the vocational and independent living rehabilitation of individuals with physical and mental disabilities.

Deadline For Transmittal of Applications: March 13, 1989.

Applications Available: February 21, 1989.

Estimated Available Funds: \$3,450,000 to \$5,150,000.

Estimated Average Size of Awards: \$86,000.

Estimated Number of Awards: 40-59.

Note.—The Department is not bound by any estimates in this notice.

Project Period: Up to 36 months.

Applicable Regulations: (a) The Education Department General Administrative Regulations (EDGAR) in 34 CFR Parts 74, 75, 77, 80, and 85; and (b) the regulations for this program in 34 CFR Parts 385 and 386.

Priority: In accordance with § 386.1 of the program regulations and 34 CFR 75.105(c)(3), the Secretary has established an absolute priority for applications that propose to provide training in one of the following areas of personnel shortages:

- Client Assistance
- Independent Living
- Rehabilitation Job Development and Job Placement
- Rehabilitation of the Blind
- Rehabilitation of the Deaf
- Rehabilitation of the Mentally Ill
- Specialized Personnel for Supported Employment
- Undergraduate Education in the Rehabilitation Services
- Vocational Evaluation and Work Adjustment
- Rehabilitation Medicine
- Physical Therapy
- Prosthetics and Orthotics
- Rehabilitation Facility Administration
- Rehabilitation Workshop and Facility Personnel

Under 34 CFR 75.105(c)(3), the Secretary funds under this competition only those applications that meet this absolute priority.

SUPPLEMENTARY INFORMATION: The long-term training program is designed to provide academic and non-academic training in areas of personnel shortage identified by the Secretary.

The Department of Education initiated a study in 1988 to update data collected on personnel shortages and training needs in vocational rehabilitation in 1986. Data collected through this study will be used to assist in allocating training funds among the categories included in this notice to reflect areas of identified personnel shortages and training needs.

A separate Notice of Proposed Priorities and Notice Inviting Applications for New Awards under the Rehabilitation Long-Term Training Program for fiscal year 1989 will be published in the *Federal Register* at a later date for the fields of Rehabilitation Counseling and "Other". With the exception of Rehabilitation Counseling and "Other", funds will be available for the award of new grants in only those rehabilitation long-term training fields designated in this notice.

FOR APPLICATIONS OR INFORMATION

CONTACT: Mary Ford, U.S. Department of Education, 400 Maryland Avenue, SW., Room 3332 (Switzer Building), Washington, DC 20202-2650. Telephone: (202) 732-1351.

Program Authority: 29 U.S.C. 774.

Dated: February 1, 1989.

Madeleine Will,

Assistant Secretary, Office of Special Education and Rehabilitative Services.

[FR Doc. 89-2753 Filed 2-3-89; 8:45 am]

BILLING CODE 4000-01-M

[CFDA No.: 84.128H]

Vocational Rehabilitation Service Projects for American Indians With Handicaps Program; Inviting Applications for New Awards for Fiscal Year 1989

Purpose of Program: This program supports projects that provide vocational rehabilitation services to American Indians with handicaps who reside on Federal and State reservations. Governing bodies of Indian tribes and consortia of such bodies located on Federal and State reservations may apply for these grants.

Deadline For Transmittal of Applications: April 3, 1989

Applications Available: February 14, 1989.

Available Funds: \$2,517,000.

Estimated Range of Awards: \$180,000 to \$800,000.

Estimated Average Size of Awards: \$210,000.

Estimated Number of Awards: 12.

Note.—The Department is not bound by any estimates in this notice.

Project Period: 12 months up to 36 months.

Applicable Regulations: (a) The Education Department General Administrative Regulations (EDGAR) in 34 CFR Parts 75, 77, 80, and 85; and (b) The regulations for this program in 34 CFR Parts 369 and 371.

FOR APPLICATIONS OR INFORMATION

CONTACT: Joseph DePhillips, U.S. Department of Education, 400 Maryland Avenue SW., Room 3324 Switzer Building, Washington, DC 20202-2575. Telephone: (202) 732-1329.

Program authority: 29 U.S.C. 777(b).

Dated: February 1, 1989.

Madeleine Will,

Assistant Secretary, Office of Special Education and Rehabilitative Services.

[FR Doc. 89-2755 Filed 2-3-89; 8:45 am]

BILLING CODE 4000-01-M

National Assessment Governing Board; Meeting

AGENCY: National Assessment Governing Board.

ACTION: Notice of closed meeting.

SUMMARY: This notice sets forth the schedule and proposed agenda of a forthcoming meeting of the Search Committee of the National Assessment Governing Board. This notice also describes the functions of the Board. Notice of this meeting is required under section 10(a)(2) of the Federal Advisory Committee Act.

DATE: February 13, 1989.

FOR FURTHER INFORMATION CONTACT:

Eunice E. Henderson, Designated Federal Official, Office of Assistant Secretary for Educational Research and Improvement, U.S. Department of Education, 555 New Jersey Avenue, NW., Room 602C, Washington, DC 20208, Telephone: (202) 357-6050.

SUPPLEMENTARY INFORMATION: The National Assessment Governing Board is established under section 406(i) of the General Education Provisions Act (GEPA) as amended by section 3403 of the National Assessment of Educational Progress Improvement Act (NAEP Improvement Act), Title III-C of the Augustus F. Hawkins-Robert T. Stafford Elementary and Secondary School Improvement Amendments of 1988 (Pub. L. 100-297); 20 USC 1221e-1).

The Board is established to advise the Commissioner of the National Center for Education Statistics on policies and actions needed to improve the form and use of the National Assessment of Education Progress, and develop specifications for the design, methodology, analysis and reporting of test results. The Board also is responsible for selecting subject areas to be assessed, identifying the objectives for each age and grade tested, and establishing standards and procedures for interstate and national comparisons.

The Search Committee of the National Assessment Governing Board will meet in closed session, via teleconference, on Monday February 13, 1989 at 8:00 p.m. until business is completed. The subcommittee is meeting in closed session to consider the results of reference checks of applicants for the position of Staff Director and to determine which candidates will be interviewed. The discussion will touch upon matters that would disclose information of a personal nature where disclosure would constitute a clearly unwarranted invasion of personal privacy if conducted in open session. Such matters are protected by

exemption (6) of section 552(b)(c) of Title 5 U.S.C.

The public is being given less than fifteen days notice of this closed session because of the difficulty of arranging the meeting so as to avoid scheduling conflicts in order to ensure participation of subcommittee members. A summary of the activities at the closed session and related matters which are informative to the public consistent with Title 5 U.S.C. 552b will be available to the public within fourteen days of this meeting.

Records are kept of all Board proceedings, and until a permanent office site for the Board has been established, are available for public inspection at the U.S. Department of Education, Office of Educational Research and Improvement, 555 New Jersey Avenue, NW., Room 600, Washington, DC from 8:30 a.m. to 5:00 p.m., Monday through Friday.

Dated: February 2, 1989.

Patricia Hines,

Assistant Secretary for Educational Research and Improvement.

[FR Doc. 89-2836 Filed 2-3-89; 8:45 am]

BILLING CODE 4000-01-M

DEPARTMENT OF ENERGY

Financial Assistance Award; Intent To Award Grant to Dr. Milton B. Thacker

AGENCY: Department of Energy.

ACTION: Notice of unsolicited financial assistance award.

SUMMARY: The Department of Energy announces that pursuant to 10 CFR 600.14, it is making a financial assistance award based on an unsolicited application under Grant Number DE-FG01-89CE15414 to Dr. Milton B. Thacker.

Scope: The funding for this grant will aid in the building and testing of a new fluid catalytic cracking model for petroleum refining.

The purpose of this project is to provide a more economical, more effective unit that will partially benefit small refineries which often find it difficult to justify and purchase the more expensive conventional unit.

Eligibility: Based on receipt of an unsolicited application, eligibility of this award is being limited to Dr. Milton B. Thacker who has high qualifications in this specialized field of technology. The project has high technical merit and represents an innovative technology which has a strong possibility of allowing for future reductions in the nation's energy consumption. There is no other known entity which is

conducting or planning to conduct activities such as the building of this unit.

The term of this grant shall be two years from the effective date of award. The estimated cost of this grant is \$89,500.

FOR FURTHER INFORMATION CONTACT: U.S. Department of Energy, Office of Procurement Operations, Attn: Phyllis Morgan, MA-453.2, 1000 Independence Avenue, SW., Washington, DC 20585.

Arnold A. Gjerstad,

Acting Director, Contract Operations Division "B", Office of Procurement Operations.

[FR Doc. 89-2723 Filed 2-3-89; 8:45 am]

BILLING CODE 6450-01-M

Bonneville Power Administration

Snohomish County Support Transmission Project; Finding of No Significant Impact

AGENCY: Bonneville Power Administration (BPA), Department of Energy.

ACTION: Finding of No Significant Impact (FONSI) and Floodplain Statement of Findings for BPA's Proposed Snohomish County Support Transmission Project.

SUMMARY: To maintain reliable service to increasing Snohomish County Public Utility District (PUD) loads, BPA proposes to replace a 4.8-mile-long 115-kV transmission line in Snohomish County, Washington, with a double-circuit 230-kV transmission line. BPA has prepared an environmental assessment (DOE/EA-0355) evaluating the proposed project. Reasons that replacing the 115-kV line with a 230-kV double-circuit line would not cause significant environmental impact include: (1) Only limited, mostly short-term impacts on land use, soils, vegetation, and wildlife (including no impact on endangered species); (2) no effect on air and water resources; (3) visual impacts on the landscape are already established by the existing transmission lines in the corridor; and (4) substantive consistency with State and local land use plans.

A finding is included that there is no practicable alternative to locating the project within a 100-year floodplain.

FOR FURTHER INFORMATION CONTACT: Anthony R. Morrell, Assistant to the Administrator for Environment, Bonneville Power Administration, P.O. Box 3621-AJ, Portland, Oregon 97208; telephone (503) 230-5136.

SUPPLEMENTARY INFORMATION: Load growth in the west-central area of Snohomish County, Washington, together with the limited capacity of the

existing transmission system in the area, has created potential overload conditions on BPA and Snohomish County PUD facilities. BPA needs to ensure that its service to Snohomish County PUD continues to be reliable. To do this, BPA proposes to replace a 115-kV transmission line between Snohomish Substation and Beverly Park Substation with a double-circuit 230-kV transmission line, with Snohomish County PUD upgrading its Beverly Park-Paine Field 55-kV line to 115-kV. From Snohomish Substation to Beverly Park Substation, the line that would be replaced is within a corridor containing three to eight other transmission lines.

Effects on land use would be mostly short-term. A wider right-of-way would be needed, but is not expected to displace existing land uses except for one house along Snohomish County PUD's part of the project. Snohomish County PUD has purchased the house, which is not of historical significance, and plans to remove it. Other effects on land use would be temporary, such as damage to crops and pasture vegetation. These impacts are not significant because they are short-term and not extensive, or limited to the one house.

Effects on vegetation would also be mostly short-term, because only limited tree clearing would be needed. Low-growing vegetation damaged by construction activity would quickly recover, and BPA would ensure that new infestations of noxious weeds do not occur.

The project would cross the Snohomish River, a navigable water. BPA would obtain the appropriate permit from the U.S. Army Corps of Engineers before construction. No other effects on water resources, including wetlands, are expected.

Terrestrial wildlife would be displaced during construction activity, but their populations are expected to become reestablished naturally along with the ground vegetation. The new line would present an obstacle for birds, as do the other lines in the corridor. However, the number of additional bird collisions is not expected to increase significantly. Because the project would not affect water, neither would it affect fish.

Construction may cause soil rutting, compaction, or erosion, but these impacts would be limited to construction sites and would be repaired as necessary. Construction may also create dust, but this would be temporary and not extensive. Cleared vegetation would not be burned, so no smoke would be created.

Because the proposed new transmission line would replace an existing line, it would have little effect on public health and safety. Magnetic field strength at the right-of-way edge may decrease slightly, and electric field strength may increase slightly, so the potential for health effects that may be caused by electric/magnetic fields would remain substantially unchanged.

The landscape that would be crossed by the new transmission line is typical of the surrounding area and contains no unique features. The existing multi-line corridor has already established visual impacts on the landscape, and the incremental change in transmission line structure size, design, and appearance would not have a significantly greater impact.

No important cultural resources are known to exist in the area of potential impact, but it is possible that undiscovered sites exist. If such sites were discovered during the pre-construction cultural resource survey or during construction, strict procedures would be followed to ensure that damage to important resources are avoided. Therefore, no effects on cultural resources are expected.

The project is consistent with all pertinent State and local land use plans and programs. The Washington Energy Facility Site Evaluation Council reviewed the project against pertinent State siting standards for such facilities, and found it consistent with those standards. The project would provide greater than the minimum vertical clearance required by the State at highway crossings, and structures would be located well away from highways, to accommodate potential highway widening. Also, transmission lines are a permitted use in all Snohomish County land use zones.

Located within Washington's coastal zone, the project is consistent with the substantive provisions of the State's coastal zone management program. The Washington Department of Ecology has commented that, to be consistent with the Washington Shoreline Management Act (through which the coastal zone program is administered), certain local shoreline development permits are required. Snohomish County has also commented that the project requires County permits, i.e., a Flood Hazard Permit and a Shoreline Management Permit. The U.S. Department of Energy and BPA do not agree that these permit processes are pertinent to this Federal project, because the processes are not authorized by the Coastal Zone Management Act or any other applicable Federal law. The controversy

is about procedural issues only, and does not affect the significance of environmental impacts.

The project is also consistent with Federal policy for farmland protection and with all regulations for pollution control at Federal facilities.

Floodplain Statement of Findings

The transmission line would unavoidably cross the Snohomish River 100-year floodplain for a distance of about 1.8 mile, within an established utility corridor. The proposed action (with a location map), the impact on the floodplain, an explanation of why the action is being proposed in the floodplain, and steps taken to minimize environmental impacts to the affected floodplain are discussed in the EA. The proposal would have negligible adverse impact on the natural vegetation and would not affect the flow of the river. Adopted mitigation measures, as described in the EA, will ensure that no significant impact will occur to the floodplain and that the action will conform to applicable state and local floodplain protection standards. DOE finds that there is no practicable alternative to locating the project within the floodplain, consistent with the policy set forth in Executive Order 11988.

Public Availability

This Finding will be distributed to all persons and agencies known to be interested in or affected by the proposed action or alternatives.

Determination

The Snohomish County Support Transmission Project is not an action normally requiring the preparation of an environmental impact statement, is not similar to any such action, and is not without precedent. Based on the information in the EA, as summarized here, the Department of Energy determines that BPA's actions will not significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act, 42 U.S.C. 4321 *et seq.* Therefore, an environmental impact statement will not be prepared.

Issued in Washington, DC, December 27, 1988.

Ernest C. Baynard III,

Assistant Secretary, Environment, Safety and Health.

[FR Doc. 89-2715 Filed 2-3-89; 8:45 am]

BILLING CODE 6450-01-M

Office of Hearings and Appeals Issuance of Decision and Orders During the Week of October 10 Through October 14, 1988

During the week of October 10 through October 14, 1988, the decisions and orders summarized below were issued with respect to appeals and applications for other relief filed with the Office of Hearings and Appeals of the Department of Energy. The following summary also contains a list of submissions that were dismissed by the Office of Hearings and Appeals.

APPEAL

United Association Local 412, 10/11/88, KFA-0220

On September 6, 1988, United Association Local 412 (Local 412) filed a Motion for Reconsideration of a Decision and Order issued by the Department of Energy (DOE) on June 3, 1988. That Decision denied an Appeal, filed under the Freedom of Information Act (FOIA), of a determination issued to Local 412 on April 8, 1988, by the DOE Albuquerque Operations Office. The Albuquerque Office had withheld employees' names and personal identifiers before releasing certified payroll records of a DOE contractor. In affirming that action in the June 3, 1988 Decision, the DOE found that release of the withheld information would constitute an unwarranted invasion of the employees' privacy, and that the information was exempt from disclosure pursuant to Exemption 6 of the FOIA. In the Motion for Reconsideration, Local 412 merely reiterated arguments made in its Appeal, including the assertion that release of the withheld material was sanctioned by the court's holding in *International Brotherhood of Electrical Workers, Local 41 v. United States Dept. of Housing and Urban Dev.*, 593 F. Supp. 542 (D.D.C. 1984), *aff'd*, 763 F.2d 435 (D.C. Cir. 1985) (*HUD*). In denying Local 412's Modification request, the DOE again distinguished the *HUD* case from the present one and found that mere allegations of wage law violations were not sufficient enough to outweigh the employees' privacy interest in the disclosure of their names and other identifying information.

Refund Applications

Aminoil U.S.A. Inc./Gulf States Refining, Inc. Progas, Inc., 10/14/88, RF139-156, RF139-158

The DOE issued a Decision and Order concerning Applications for Refund filed by Gulf States Refining, Inc. and Progas, Inc. in the Aminoil U.S.A., Inc. special

refund proceeding. The firms submitted information which indicated that they were spot purchasers of Aminoil products and thus ineligible for a refund under the procedures outlined in *Aminoil*. Although allowed an opportunity to rebut this presumption, the applicants did not do so. Accordingly, both applications were denied.

Atlantic Richfield Company/Bernie Nisman, Inc. et al., 10/13/88, RF304-203, et al.

The DOE issued a Decision and Order concerning seventy-two Applications for Refund in the Atlantic Richfield Company special refund proceeding. All of the applicants were either end-users or resellers and retailers that applied under the small claims presumptions. In addition, all of these firms documented their Arco purchase volumes and thus were presumed to have been injured. The DOE concluded that these firms should receive refunds totalling \$103,323, representing \$82,490, in principal and \$20,825 in accrued interest.

Atlantic Richfield Company/Burris Foods, Inc., et al., 10/14/88, RF304-400, et al.

The DOE issued a Decision and Order concerning Applications for Refund filed by 24 claimants in the Atlantic Richfield Company special refund proceeding. All of the applicants were either end-users or reseller/retailers that applied for small claims presumption refunds. In addition, each applicant documented the volume of its purchases from ARCO and, therefore, was presumed to have been injured and entitled to a refund. The DOE concluded that these firms should receive refunds totalling \$26,017 in principal and \$6,569 in accrued interest.

Atlantic Richfield Company/Gary G. Emerizy et al., 10/14/88, RF304-428, et al.

The DOE issued a Decision and Order concerning Applications for Refund filed by forth-seven claimants in the Atlantic Richfield Company special refund proceeding. Each applicant is either an end-user or a reseller/retailer applying for a small claims refund. In addition, each applicant documented the volume of its purchases from ARCO and thus was presumed to have been injured and entitled to a refund. The DOE concluded that these firms should receive refunds totalling \$51,331, representing \$40,985 in principal and \$10,346 in accrued interest.

Atlantic Richfield Company/Louis Arco et al., 10/14/88, RF304-208, et al.

The DOE issued a Decision and Order concerning Applications for Refund filed by five claimants in the Atlantic

Richfield Company special refund proceeding. Each applicant is either an end-user or a reseller/retailer applying for a small claims refund. In addition, each of these firms documented their volume of purchases from ARCO and thus was presumed to have been injured. The DOE concluded that these firms should receive refunds totalling \$7,875, representing \$5,809 in principal and \$1,466 in accrued interest.

Baxter Healthcare Corporation, 10/14/88, RE272-12185

The DOE issued a Decision and Order denying a refund to the Baxter Healthcare Corporation (Baxter) in the Subpart V crude oil refund proceeding. The DOE found that a predecessor to Baxter, Baxter Travenol, had previously been granted a refund from the Surface Transporter Excrow Account and thus had waived any right for itself or successors in interest to a refund in the Subpart V proceeding. Accordingly, the application was denied.

Charles Freihoffer Baking Company, 10/12/88, RF272-6997

The DOE issued a Decision and Order granting a refund in the Subpart V crude oil refund proceeding to Charles Freihoffer Baking Company. The firm documented with actual invoices purchases of 4,351,804 gallons of No. 2 heating oil and provided estimates of additional purchases of 4,677,694 gallons of No. 2 diesel fuel and motor gasoline. The estimates were based on the applicant's total mileage as recorded in company logs, divided by an average of 4 to 6 miles per gallon. The DOE determined that this estimation method was reasonable for the purposes of the proceeding and granted a refund, including interest, of \$1,806.

Cooperative Power Arkansas Electric Cooperative Corp. Arkansas Electric Cooperative, Inc., 10/14/88, RF272-23, RF272-30, RF272-31

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to Cooperative Power (CP), the Arkansas Electric Cooperative Corporation (AECC), and the Arkansas Electric Cooperative, Inc. (AECI) in the Subpart V crude oil refund proceeding. During the period August 19, 1973, through January 27, 1981, CP and AECC operated electricity generation and transmission cooperatives, while AECI served as the state association for 18 consumer-owned cooperatives. The DOE found that each applicant had submitted sufficient documentation to support its claim. In addition, CP and AECC certified that they would pass through any refund granted. The DOE determined that AECI need not certify

that it would pass through its refund since it was not an electrical generation and transmission cooperative and did not resell the petroleum products. In reaching its determination, the DOE rejected the comments of a group of States in opposition to the refund requests. Specifically, the DOE found that the States had not demonstrated that CP and AECC were ineligible to receive a refund as electrical cooperatives and that the State's Comments on the AECI claim were not relevant. Accordingly, the DOE approved a refund of \$1,847 to CP, \$68,966 to AECC and \$1,342 to AECI based upon the amount of their respective purchases multiplied by the current volumetric of \$0.0002 per gallon. The distribution of funds to CP and AECC was stayed pending the outcome of litigation regarding the distribution of crude oil refunds to utilities.

Deans Oil Co., Inc., S&U Coal & Oil, Russell Sohio Service, 10/13/88, RF272-11204, RF272-11205, RF272-11279

The DOE issued a Decision and Order denying three Applications for Refund filed in connection with the Subpart V crude oil refund proceedings. Each applicant was either a reseller or retailer during the period August 19, 1973, through January 27, 1981. Because none of the applicants demonstrated that they were injured due to crude oil overcharges, they were found to be ineligible for a refund and the claims were denied.

Exxon Corporation/Canton Village Exxon et al., 10/13/88, RF307-1102 et al.

The DOE issued a Decision and Order concerning 50 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either an end-user or a reseller of Exxon products whose allocable share is less than \$5,000. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$42,194 (\$37,362 principal plus \$4,832 in accrued interest).

Exxon Corporation/City of Beaufort et al., 10/14/88, RF307-2241 et al.

The DOE issued a Decision and Order concerning 14 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was

eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$6,740 (\$5,933 principal plus \$807 interest).

Exxon Corporation/Country Gas Distributors, Inc. et al., 10/13/88, RF307-661 et al.

The DOE issued a Decision and Order concerning six Applications for Refund filed in the Exxon Corporation special refund proceeding. All the Applicants purchased directly from Exxon and were resellers whose allocable share is greater than \$5,000. Each applicant elected to receive a refund of \$5,000 or 40 percent of its full allocable share, whichever is greater, under the medium range presumption. In each case the refunds were limited to \$5,000. The sum of the refunds granted in this Decision is \$34,080 (\$30,000 principal plus \$4,080 interest).

Exxon Corporation/Dew Oil Company, Racoil Corporation, 10/13/88, RF307-2315, RF307-2320

The DOE issued a Decision and Order concerning two Applications for Refund filed in the Exxon Corporation special refund proceeding. Each firm purchased directly from Exxon and was a reseller of Exxon products whose allocable share exceeded \$5,000. However, each applicant elected to limit its claim to \$5,000. Each firm was granted a refund of \$5,680 (\$5,000 principal plus \$680 interest).

Exxon Corporation Jay's Exxon et al., 10/13/88, RF307-551 et al.

The DOE issued a Decision and Order concerning 41 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$25,266 (\$22,372 principal plus \$2,894 interest).

Exxon Corporation Raritan Valley Exxon et al., 10/13/88, RF307-2901 et al.

The DOE issued a Decision and Order concerning 46 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is

\$31,697 (\$28,066 principal plus \$3,631 interest).

Exxon Corporation/Schnieder Fuel Oil, Inc. Exxon et al., 10/13/88, RF307-2201 et al.

The DOE issued a Decision and Order concerning 49 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$32,751 (\$29,000 principal plus \$3,751 interest).

Exxon Corporation/William's Exxon et al., 10/13/88, RF307-1171 et al.

The DOE issued a Decision and Order concerning 47 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$29,795 (\$28,378 principal plus \$3,417 interest).

Gulf Oil Corporation/G & S Terminals, Inc. et al., 10/12/88, RF300-1300 et al.

The DOE issued a Decision and Order concerning 15 Applications for Refund filed in the Gulf Oil Company special refund proceeding. The applicants documented their Gulf purchases and were either end-users of resellers whose claims were for \$5,000 or less. Therefore, each applicant is presumed to have been injured and is eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is, including both principal and interest, is \$18,970.

Joe Turner et al., 10/13/88, RF272-6222 et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to six applicants based on their purchases of refined petroleum products during the period August 19, 1973, through January 27, 1981. Each applicant used various actual records and/or conservative estimates to support their gallonage claims. Each applicant was an end-user of the products it purchased and was therefore presumed injured. The sum of the refunds granted in this Decision is \$978. All of the claimants will be eligible for

additional refunds as further crude oil overcharge funds become available.

New Jersey Transit Corporation, 10/12/88, RF272-68243

The New Jersey Transit Corporation (NJTC) filed an amended application for an additional refund in the Subpart V crude oil refund proceedings. The amended application was based on purchases of covered products not included in the original NJTC application. *Metropolitan Atlanta Rapid Transit Authority, et al., 17 DOE ¶ 85,243 (1988).* In its amended claim, NJTC provided reasonable estimates of those purchases for which it did not have actual records. Accordingly, the amended application was approved and NJTC was granted an additional refund, including interest of \$4,073.

Norwich University et al., 10/12/88, RF272-1895, et al.

The DOE issued a Decision concerning six Applications for Refund in the Subpart V crude oil refund proceedings. The Applicants purchased various petroleum products during the period August 19, 1973, through January 27, 1981. Five of the Applicants used contemporaneous material to document their volume of purchases while the sixth employed reasonable and acceptable estimating techniques. Each of the Applicants was an end-user of the petroleum products that it purchased and therefore presumed to have been injured. The total refunds approved in this Decision, including interest, was \$4,811.

Pennzoil Co./Indiana, 10/12/88, RM10-121

The OHA issued a Decision and Order approving a Motion for Modification filed by the State of Indiana in the Pennzoil Co. refund proceeding. Indiana requested permission to use \$41,695 (\$22,407 in principal plus \$19,288 in interest) of its previously approved Pennzoil funds for its Fuel Saver Van Program. The program uses a travelling van equipped with a computer that, when attached to a car's engine, measures the efficiency of that engine. The OHA found that by helping Indiana residents to make their cars more energy efficient and thereby helping them to save on fuel costs, this program will provide restitution to injured Indiana consumers of motor gasoline.

Standard Oil Co. (Indiana)/Office of State and Local Assistance Programs, 10/12/88, RQ251-469

The OHA issued a Decision and Order dismissing a request by the Office of State and Local Assistance Programs

of the DOE for clarification of certain language in a Previous Decision and Order. See *Standard Oil Co. (Indiana)/Indiana*, 15 DOE ¶ 85,238 (1987). The language concerned the applicability of the State Energy Conservation Program (SECP) regulations to a program financed with second-stage refund monies. The OHA restated its position in the Decision that the SECP regulations did not apply to a program funded with second stage refunds, and found no reason to modify the previous Decision. Accordingly, the request was dismissed.

*Suburban Propane Gas Corporation/
Enterprise Products Company*, 10/
14/88, RF299-54

The DOE issued a Decision and Order granting an Application for Refund filed by Enterprise Products Company, a purchaser of refined petroleum products, in the Suburban Propane Gas Corporation special refund proceeding. According to the procedures set forth in *Suburban Propane Gas Corporation*, 16 DOE ¶ 85,382 (1987), Enterprise was found to be eligible for a refund based on the volume of commercial butane it purchased from Suburban. The total refund approved in this Decision was \$1,471, representing \$1,253 in principal plus \$218 in accrued interest.

*Texas-New Mexico Power Company;
Boston Edison Company*, 10/14/88,
RF272-26231, RF272-55580

The DOE issued a Decision and Order denying two Applications for Refund in the crude oil refund proceedings. Both Texas-New Mexico Power Company and the Boston Edison Company had previously received crude oil refunds from one of the eight Stripper Well escrows, the Utilities Escrow. By receiving those monies, both applicants had irrevocably waived their rights to any future crude oil monies, including crude oil overcharge monies held by the DOE. Accordingly, both submissions were denied.

Crude Oil End-Users

The Office of Hearings and Appeals granted crude oil overcharge refunds to end-user applicants in the following Decisions and Orders:

Name	Case No.	Date	No. of applicants	Total refund
David Ruback <i>et al.</i>	RF272-15623.....	10/14/88	17	\$4,282
Donagel Sch. District <i>et al.</i>	RF272-14000.....	10/14/88	17	\$6,560
Philip Crouse <i>et al.</i>	RF272-15205.....	10/14/88	17	\$1,558

Dismissals

The following submissions were dismissed:

Name	Case No.
Anchor Gasoline Corp.....	KRO-0330.
Aurora Gulf Service.....	RF300-666.
Bergeron Oil Service.....	RF300-4805.
Frey's General Store.....	RF300-1561.
Fuchs Oil Co.....	RF300-618.
Pat's Truck Stop.....	RF300-4018.
Talco Self Service.....	RF300-1566.
Woerner Oil Co., Inc.....	RF265-1717.

Copies of the full text of these decisions and orders are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except federal holidays. They are also available in *Energy Management: Federal Energy Guidelines*, a commercially published loose leaf reporter system.

January 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.
[FR Doc. 89-2718 Filed 2-3-89; 8:45 am]

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Issuance of Decisions and Orders During the Week of November 7 Through November 11, 1988

During the week of November 7 through November 11, 1988, the decisions and orders summarized below were issued with respect to appeals and applications for other relief filed with the Office of Hearings and Appeals of the Department of Energy. The following summary also contains a list of submissions that were dismissed by the Office of Hearings and Appeals.

Appeals

Glen Milner, 11/8/88, KFA-0175

Glen Milner filed an Appeal from a partial denial by the Senior Information Officer, Office of Intergovernmental and External Affairs, of the DOE Albuquerque Operations Office, of a request for information submitted under the Freedom of Information Act. Milner requested the release of "all documents on file" that would provide specified information regarding the production, storage and transportation of certain nuclear warheads. On review, OHA adopted the determination of the DOE Office of Policy and Program Operations that the initial determination was incomplete because (1) it did not address the full scope of the request and (2) appropriate classification review of identified responsive documents had not

taken place. Accordingly, the Appeal was remanded to the Albuquerque Operations Office for a new and complete determination of the initial request.

International Brotherhood of Electrical Workers, Local Union #425, 11/8/88, KFA-0224

The International Brotherhood of Electrical Workers, Local Union #425 (IBEW) filed an Appeal from a denial by the Deputy Associate Director for Resource Management of the Morgantown Energy Technology Center of the Department of Energy (DOE) of a Request for Information which it had submitted under the Freedom of Information Act (FOIA). IBEW sought records reflecting compensation of employees of a DOE subcontractor including, in particular, the release of a pension plan. IBEW also claimed that released payroll records did not explain fringe benefits. In considering the Appeal, DOE found that the pension plan was not an agency record and therefore not releasable under the FOIA. With respect to the request involving fringe benefits, the DOE found no requirement to explain documents released pursuant to the FOIA. Accordingly, the DOE denied the IBEW's Appeal.

Implementation of Special Refund Procedures

Placid Oil Company, 11/7/88, KEF-0007

The DOE issued a Decision and Order implementing a plan for the distribution of \$1,478,456 (plus accrued interest) received pursuant to a consent order that the Agency entered into with Placid Oil Company. The DOE determined that the consent order funds should be distributed to purchasers of Placid refined petroleum products during the period August 19, 1973 through January 27, 1981. The specific information to be included in Applications for Refund is set forth in the Decision.

Refund Applications

Airborne Express, Inc., 11/7/88, RF272-9331, RD272-9331

Airborne Express, Inc., an all-cargo air carrier, filed an Application for Refund in the Subpart V crude oil refund proceeding. The claim was based upon the firm's purchases of aviation fuel during the period August 19, 1973 through January 27, 1981. A group of thirty States and two Territories (collectively "the States") filed objections to the receipt of any refund by Airborne, contending that the firm had suffered no actual injury as a result of crude oil overcharges. In addition, the States filed a Motion for Discovery. In considering Airborne's refund application, the DOE determined that the firm had consumed petroleum products in a business unrelated to the petroleum industry. The DOE further determined that the States had failed to rebut the presumption that an end-user, such as Airborne, was injured. The DOE pointed out that the industry-wide data presented in the objections primarily related to scheduled passenger airlines and was not sufficiently probative of the operations of all-cargo air carriers such as Airborne. On the same basis, the DOE determined that the States had failed to adequately support their Motion for Discovery. Accordingly, Airborne's Application for Refund was approved, and the States' Objections and Motion for Discovery were denied. The total refund amount approved in this Decision and Order is \$5,654.

Atlantic Richfield Company/Borough of Collingdale et al., 11/8/88, RF304-104 et al.

The DOE issued a Decision and Order concerning 49 Applications for Refund filed in the Atlantic Richfield Company (ARCO) special refund proceeding. As end-users or reseller/retailers claiming refunds of less than \$5,000 in principal, the applicants were presumed to have been injured by ARCO's alleged

overcharges. After examining the applications and supporting documentation, the DOE determined that the firms should receive refunds of \$55,452, representing \$44,051 in principal and \$11,401 in interest.

Atlantic Richfield Company/Canteen Corp. et al., 11/8/88, RF304-378 et al.

The DOE issued a Decision and Order concerning six Applications for Refund filed in the Atlantic Richfield Company special refund proceeding. All of the applicants documented their purchases from ARCO and were end-users or reseller/retailers requesting refunds of less than \$5,000. Therefore, each applicant was presumed to have been injured. The refunds granted in this decision totalled \$4,922 in principal and \$1,273 in accrued interest.

Atlantic Richfield Company/Holly Oil Company, Inc. et al., 11/8/88, RF304-411 et al.

The DOE issued a Decision and Order concerning fourteen Applications for Refund filed in the Atlantic Richfield Company special refund proceeding. All of the applicants were reseller/retailers and documented their purchases from ARCO. In addition, all of the applicants elected to limit their claims to \$5,000 in principal, and, therefore, were presumed to have been injured by alleged ARCO overcharges. The firms received refunds totalling \$37,572, representing \$30,000 in principal and \$7,572 in accrued interest.

Atlantic Richfield Company/McCann Service et al., 11/8/88, RF304-600 et al.

The DOE issued a Decision and Order concerning forty-five Applications for Refund filed in the Atlantic Richfield Company special refund proceeding. All of the applicants were end-users or reseller/retailers requesting refunds of less than \$5,000. Therefore, each applicant was presumed to have been injured by alleged ARCO overcharges. The refunds granted in this decision totalled \$68,117, including \$54,112 in principal and \$14,005 in accrued interest.

Atlantic Richfield Company/Metro Fuel Oil Co., Inc. et al., 11/8/88, RF304-802 et al.

The DOE issued a Decision and Order concerning 68 Applications for Refund filed in the Atlantic Richfield Company (ARCO) special refund proceeding. As reseller/retailers claiming refunds of less than \$5,000 in principal or end users, the applicants were presumed to have been injured by ARCO's alleged overcharges. The DOE determined that the firms should receive refunds of \$103,449, representing \$82,182 in principal and \$21,267 in interest.

Charles E. Dohn, 11/8/88, RF272-9996

The DOE issued a Decision and Order concerning an application for refund filed by Charles E. Dohn in the crude oil overcharge refund proceeding. Mr. Dohn did not retain purchase records which would enable him to determine precisely his total consumption of refined petroleum products. Based on his income tax records, Mr. Dohn determined that he purchased \$42,223.99 of petroleum products during the price control period. He estimated that he spent 75% of that amount on diesel fuel and 25% on gasoline. Using a weighted average price for diesel fuel of \$0.4586821/gallon and a weighted average price of gasoline of \$0.7025/gallon, the DOE determined that Mr. Dohn purchased 84,067 gallons of petroleum products. Based on that volume of purchases, Mr. Dohn received a refund of \$16.81.

Citizens Gas & Coke Utility, 11/9/88, RF272-7233, KFR-0044

Citizens Gas & Coke Utility, a municipal gas utility, filed an application for refund in the Subpart V crude oil refund proceeding. A group of states filed, and later withdrew, an objection to Citizens' application. A similar group of states also filed a Motion for Stay, which was granted by OHA to the extent that the disbursement of refunds to Citizens and 47 other regulated utilities would not be effected. *Pacific Gas & Electric Co., 17 DOE ¶ 85,315 (1988)*. Citizens then filed a Motion for Rescission in which it requested that OHA exclude Citizens from the terms of the stay. Since this motion was unopposed, the DOE granted Citizens' Motion for Rescission and directed that a refund of \$10,316 be disbursed to Citizens.

City of Norwich, Department of Public Utilities, 11/10/88, RF272-11468

The DOE issued a Decision and Order granting an Application for Refund filed by the City of Norwich, Connecticut, Department of Public Utilities, in the Subpart V crude oil refund proceeding. Norwich, a purchaser and end-user of petroleum products, stated that it would pass through any refund received to its customers. Accordingly, it was not required to show injury. The total refund approved was \$1,338.

Convenience Store Distributing Company, Worcester Housing Authority, 11/9/88, RF272-7130, RF272-7126

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to Convenience Store Distributing Company and Worcester

Housing Authority based on each applicant's respective purchases of refined petroleum products during the period August 19, 1973, through January 27, 1981. Each applicant was an end-user of the products involved and was therefore presumed injured. The sum of the refunds granted in this Decision is \$1,436.

Eastern Oil Company/Northside Propane Inc., 11/8/88, RF306-3

The DOE issued a Decision and Order granting an Application for Refund filed by Northside Propane in the Eastern Oil Company special refund proceeding. The applicant was a reseller of motor gasoline whose allocable share of the consent order fund was less than \$5,000. Accordingly, the applicant received its full allocable share and was not required to demonstrate injury. The total refund granted is \$4,472, representing \$3,846 in principal and \$626 in interest.

Exxon Corporation/Carmichael Oil of Walterboro et al., 11/9/88, RF307-312 et al.

The DOE issued a Decision and Order granting a refund to five resellers of refined petroleum products from consent order funds collected from Exxon Corporation. Because the applicants limited their claims to the greater of \$5,000 or 40 percent of the volumetric refund amount, none was required to demonstrate injury. Each of the five firms received a refund of \$5,722 (\$5,000 in principal and \$722 in interest).

Exxon Corporation/Donald J. Dykstra et al., 11/9/88, RF307-1127 et al.

The DOE issued a Decision and Order concerning 56 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants was either an Exxon reseller whose allocable share was less than \$5,000 or an end-user of Exxon products. The DOE therefore found that each applicant was eligible to receive a refund equal to its full allocable share without demonstrating injury. The sum of the refunds granted in this Decision is \$28,471 (\$25,064 in principal plus \$3407 in interest).

Exxon Corporation/E.R. Vine & Sons, Inc., 11/10/88, RF307-2524

The DOE issued a Decision and Order concerning an Application for Refund filed by E.R. Vine & Sons, Inc. in the Exxon Corporation special refund proceeding. Vine's allocable share was calculated to be in excess of \$5,000. Since Vine did not elect to make a showing of injury, the firm was eligible to receive the larger of \$5,000 or 40 percent of its allocable share up to \$50,000. In this case, 40 percent was

greater and accordingly the firm was granted a refund of \$9,521 (\$8,381 in principal and \$1,140 in interest).

Exxon Corporation/Howard Cunningham et al., 11/7/88, RF307-403 et al.

The DOE issued a Decision and Order concerning 50 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants was either an Exxon reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share without a demonstration of injury. The sum of the refunds granted in this Decision is \$27,646 (24,338 in principal plus \$3,308 in interest).

Exxon Corporation/National Exxon et al., 11/10/88, RF307-1843 et al.

The DOE issued a Decision and Order concerning 50 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants was either an Exxon reseller whose allocable share was less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share without a demonstration of injury. The sum of the refunds granted in this Decision is \$31,223 (\$27,486 in principal plus \$3,737 in interest).

Exxon Corporation/Ripley Esso Service et al., 11/7/88, RF307-2032 et al.

The DOE issued a Decision and Order concerning 48 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants was either a reseller of Exxon products whose allocable share was less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share without a demonstration of injury. The sum of the refunds granted in this Decision is \$29,137 (\$25,650 in principal plus \$3,487 in interest).

Exxon Corporation/Vadney Feed & Fuel et al., 11/8/88, RF307-2848, et al.

The DOE issued a Decision and Order concerning 42 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants was either a reseller of Exxon products whose allocable share was less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share without a demonstration of injury. The sum of the refunds granted

in this Decision is \$27,279 (\$24,013 in principal plus \$3,266 in interest).

Getty Oil Company/Brook Quick Stop, 11/7/88, RF265-2748

Brook Quick Stop filed an Application for Refund in which it sought a portion of the fund obtained by the DOE through a consent order entered into with the Getty Oil Company. Brook documented the volume of motor gasoline which it purchased from the Tri-County Oil Company, a Getty Jobber. Brook was granted a refund, which was calculated based upon the procedures outlined in *Pioneer Corp./E.I. du Pont de Nemours & Co.*, 14 DOE ¶ 85,190 (1986). The refund totaled \$3,012, representing \$1,465 in principal and \$1,547 in accrued interest.

Getty Oil Company/Manzor Petroleum Co., 11/7/88, RF265-2715

Manzor Petroleum Co. filed an Application for Refund in which it sought a portion of the fund obtained by the DOE through a consent order entered into with the Getty Oil Company. Manzor documented the volume of motor gasoline which is purchased from Getty through the Gaylen Petroleum Company, a Getty Jobber. Manzor was granted a refund, which was calculated based upon the procedures outlined in *Pioneer Corp./E.I. du Pont de Nemours & Co.*, 14 DOE ¶ 85,190 (1986). The refund totaled \$1,082, representing \$526 in principal and \$556 in accrued interest.

Getty Oil Company/Slezak Terminals, Inc., 11/9/88, RF265-0083, RF265-0084, RF265-0085, RF265-0086

The DOE issued a Decision and Order concerning four Applications for Refund filed by a retailer/reseller of motor gasoline, middle distillates and motor oil that were covered by a Consent Order that the DOE entered into with Getty Oil Company. The applicant submitted information indicating purchases from Getty of 11,312,900 gallons of motor gasoline, 539,615 gallons of middle distillates and 13,900 gallons of motor oil during the consent order period. It elected to limit its claims on the basis of the level-of-distribution presumption of injury methodology and was eligible for a refund below the \$50,000 ceiling. The sum of the refund approved in this Decision is \$15,099, representing \$7,337 in principal and \$7,762 in accrued interest.

Gulf Oil Corporation/Batten's Gulf Service et al., 11/10/88 RF300-7203 et al.

The DOE issued a Decision granting 43 Applications for Refund in the Gulf Oil Corporation special refund

proceeding. Each application was approved using a presumption of injury. The total refund approved was \$79,725.

Gulf Oil Corporation/Brown Transport Corp. et al., 11/9/88, RF300-5126 et al.

The DOE issued a Decision and Order concerning 97 Applications for Refund filed in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$169,468.

Gulf Oil Corporation/Charles Service Station et al., 11/7/88, RF300-2515 et al.

The DOE issued a Decision and order concerning 80 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$134,872.

Gulf Oil Corporation/Dale Bower et al., 11/7/88, RF300-4941 et al.

The DOE issued a Decision and order concerning 103 Applications for Refund filed in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$232,765.

Gulf Oil Corporation/East Penn Foundry Company et al., 11/10/88, RF300-2607 et al.

The DOE issued a Decision and Order concerning 70 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$137,368.

Gulf Oil Corporation/Greenville Gulf et al., 11/9/88, RF300-7451 et al.

The DOE issued a Decision granting 30 Applications for Refund in the Gulf Oil Corporation special refund proceeding. Each Application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$51,691.

Gulf Oil Corporation/Leroy Brown et al., 11/9/88, RF300-2699 et al.

The DOE issued a Decision and Order concerning 86 Applications for Refund in the Gulf Oil Corporation special refund proceeding. Each application was granted using a presumption of injury. The sum of the refunds granted in this Decision is \$164,756.

Gulf Oil Corporation/Singing River Electric Power Association et al., 11/10/88, RF300-7011 et al.

The DOE issued a Decision and Order concerning 83 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$156,686.

Gulf Oil Corporation/White Mountain Oil Co. et al., 11/9/88, RF300-7300 et al.

The DOE issued a Decision granting 50 Applications for Refund in the Gulf Oil Corporation special refund proceeding. Each application was granted using a presumption of injury. The sum of the refunds granted in the Decision is \$91,090.

Hall & Dean, Inc., Estes Sunoco, 11/8/88, RF272-32542, RF272-32634

The DOE issued a Decision and Order denying Applications for Refund filed by Hall & Dean, Inc. and Estes Sunoco in the Subpart V crude oil refund proceeding. The DOE's denial was based on the fact that each firm was a reseller of petroleum products that did not demonstrate that it was injured by crude oil overcharges.

Harold S. Hunkins, 11/10/88, RF272-75068

The DOE rescinded a duplicate refund of \$24 granted to Harold S. Hunkins in the crude oil overcharge refund proceeding.

Omnitrans et al., 11/9/88, RF272-5985 et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to six applicants based on their respective purchases of refined petroleum products during the period August 19, 1973 through January 27, 1981. Each applicant was an end-user of the products involved and was therefore presumed to have been injured by the alleged crude oil overcharges. The sum of the refunds granted in this Decision is \$645.

Sitton Drilling Co. et al., 11/7/88, RF272-16019 et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to 47 applicants based on their respective purchases of refined petroleum products during the period August 19, 1973, through January 27, 1981. Each applicant was an end-user of the refined products involved and was therefore presumed injured by the

alleged crude oil overcharges. The sum of the refunds granted in this Decision is \$16,962.

Swire Pacific Holdings, Inc. et al., 11/10/88, RF272-31806 et al.

The DOE issued a Decision and Order approving 17 Applications for Refund submitted in the Subpart V crude oil overcharge refund proceeding. Each applicant was an end-user of the refined products involved and was therefore presumed injured by the alleged crude oil overcharges. The sum of the refunds granted in the Decision is \$2,714.

Ted Folz Custom Service et al., 11/10/88, RF272-60854 et al.

The DOE issued a Decision and Order considering 15 Applications for Refund filed in the Subpart V crude oil refund proceeding. Each applicant was reseller or retailer of refined petroleum products and none of the applicants demonstrated that it was injured due to the crude oil overcharges. Accordingly, all the Applications were denied.

Town of Winterville, 11/10/88, RF272-10675

The DOE issued a Decision and Order granting an Application for Refund filed by the Town of Winterville, North Carolina, in the Subpart V Crude Oil refund proceeding. As an end-user of refined petroleum products, Winterville was presumed injured by alleged crude oil overcharges. The total refund approved in this Decision was \$32.

Vicker Energy Corp./National Helium Corp./Arizona, 11/8/88, RQ1-483, RQ3-484

The DOE issued a Decision and Order granting the second-stage refund application filed by the State of Arizona in the Vickers Energy Corporation and National Helium Corporation special refund proceedings. Arizona requested a total of \$133,405 for two programs. The first would provide information and instruction to the motoring public concerning the need for properly inflated tires to achieve maximum fuel efficiency. The second program is a media campaign to encourage ridesharing. The DOE found that these programs would provide restitution to injured consumers of motor gasoline by helping motorists save on fuel costs. Accordingly, Arizona's request was granted.

Crude Oil End-Users

The Office of Hearings and Appeals granted crude oil overcharge refunds to end-user applicants in the following Decisions and Orders:

Name	Case No.	Date	No. of applicants	Total refund
Franklin D. Broom <i>et al.</i>	RF272-10531	11/10/88	79	\$3,019
LAC-USC Medical Center <i>et al.</i>	RF272-16601	11/7/88	41	19,145

Dismissals

The following submissions were dismissed:

Name	Case No.
ARCO/Acme Butane Co.	RF304-5055
ARCO/Vito's ARCO	RF304-249
Charlie's ARCO	RF304-3509
Courtney Wood Oil Co.	RF265-653
Craig's ARCO	RF304-2643
Dave's Oil Company	RF265-1646
El Rancho Truck Stop	RF265-2723
	RF265-2724
G & G Car Wash & Gas	RF304-3480
Gazaway's Gulf	RF300-9646
George P. Hines	RF304-4369
Haynes Oil Company	RF304-5132
Joe's 2nd St. Atlantic, Inc.	RF304-3492
Johns Oil Company	RF265-1432
K.L. Lamberson Fuel Oil Company	RF304-2104
Minnesota	KEA-0002
Missouri Dept. of Corrections	RF272-59102
Penrose ARCO	RF304-3731
Pittsboro Gulf Service	RF300-10566
Smith's Midway Getty, Inc.	RF265-1065
Spartansburg Public Library	RF272-74242
Transue's Gulf Service Station	RF300-8867

Copies of the full text of these decisions and orders are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue SW., Washington, DC. 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except Federal holidays. They are also available in *Energy Management: Federal Energy Guidelines*, a commercially published loose leaf reporter system.

January 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

[FR Doc. 89-2719 Filed 2-3-89; 8:45 am]

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Issuance of Decisions and Orders During the Week of November 28 Through December 2, 1988

During the week of November 28 through December 2, 1988, the decisions and orders summarized below were issued with respect to appeals and applications for other relief filed with the Office of Hearings and Appeals of the Department of Energy. The following summary also contains a list of submissions that were dismissed by the Office of Hearings and Appeals.

Appeals

Kenneth P. Brooks, 12/1/88, KFA-0226

Kenneth P. Brooks filed an Appeal from a denial by the Deputy Director, Office of Intergovernmental and External Affairs, Albuquerque Operations Office, of a Request for Information which he had submitted under the Freedom of Information Act. In considering the Appeal, the DOE determined that the names of the unsuccessful applicants for a DOE position and certain identification and background information on the successful applicant had been correctly withheld under Exemption 6. However, the DOE found that certain information concerning the successful applicant's qualifications and less sensitive background information must be released. In addition, the DOE found that a new search for other documents responsive to Brooks' request was necessary. Accordingly, the Appeal was granted in part, denied in part, and remanded to the Albuquerque Operations Office for a new search.

Technology for Energy Corporation, 11/28/88, KFA-0228

Technology for Energy Corporation (TEC) filed an Appeal from a partial denial by the Savannah River Operations Office of a Request for Information which the firm had submitted under the Freedom of Information Act (the FOIA). In considering the Appeal, the DOE found that the authorizing official at Savannah River properly withheld portions of certain documents pursuant to Exemption 4.

Important issues that were considered in the Decision and Order were (i) whether discount information is withholdable under FOIA Exemption 4, and (ii) whether detailed technical information, the release of which would reveal proprietary information, is withholdable under Exemption 4.

Refund Applications

Atlantic Richfield Company/Advanced Business Service, Inc., 12/2/88, RF304-1283, et al.

The DOE issued a Decision and Order concerning 45 Applications for Refund filed by 45 claimants from a consent order fund made available by Atlantic Richfield Company. As resellers/retailers applying for small claims

refunds and end-users, these firms were presumed to have been injured. The DOE determined that these firms should receive refunds totalling \$51,671, representing \$40,946 in principal and \$10,725 in accrued interest.

Atlantic Richfield Company/John's ARCO, et al., 12/2/88, RF304-1400 et al.

The DOE issued a Decision and Order concerning 77 Applications for Refund filed in the Atlantic Richfield Company (ARCO) special refund proceeding. As end-users or reseller/retailers claiming refunds of less than \$5,000 in principal, each applicant was presumed to have been injured by ARCO's alleged overcharges. After examining the applications and supporting documentation, the DOE determined that the firms should receive refunds totalling \$94,920, representing \$75,231 in principal and \$19,689 in interest.

City of Tampa et al., 11/30/88, RF272-30957 et al.

The DOE issued a Decision and Order approving Applications for Refund submitted by 21 claimants for crude oil overcharge funds collected by the DOE. The DOE found that the claimants, all end-users, met the eligibility requirements by supplying their actual or estimated purchase volume information for their commercial or agricultural activities. The DOE granted the claimants refunds totalling \$17,275 based on their purchases of 86,381,110 gallons of refined petroleum products.

Coastline Construction Corp. et al., 12/2/88, RF272-34101 et al.

The DOE issued a Decision and Order approving Applications for Refund submitted by 11 claimants for crude oil overcharge funds collected by the DOE. The DOE found that the claimants, all end-users, met the eligibility requirements by supplying their actual or estimated purchase volume information for their commercial or agricultural activities. The DOE granted the claimants refunds totalling \$1,029 based on their purchases of 5,148,513 gallons of refined petroleum products.

Commonwealth Gas Co. et al., 11/30/88, RF272-306, et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to 32 applicants based

on their respective purchases of refined petroleum products during the period August 19, 1973 through January 27, 1981. Each applicant used petroleum products for various activities including farming, electricity generation, and manufacturing, and each determined its volume claim either by consulting actual purchase records or by reasonably estimating its consumption. Each applicant was an end-user of the products it claimed and was therefore presumed by the DOE to have been injured. The sum of the refunds granted in this decision is \$31,180. All of the claimants will be eligible for additional refunds as additional crude oil overcharge funds become available.

Cook Construction Company, Inc., 12/1/88, RF272-2005, RD272-2005

The DOE issued a Decision and Order granting, in part, a crude oil refund application filed by Cook Construction Company, Inc. (Case No. RF272-2005) (Cook). Cook requested a refund based on 79,751,804 gallons of refined petroleum products it used to manufacture and install asphalt pavement. A group of States objected to Cook's refund because, they argued, Cook was not injured by crude oil overcharges. The States also submitted a motion for discovery. The DOE denied the motion for discovery, but requested additional information concerning Cook's ability to pass through increased fuel costs to its contractee through contractual price escalator clauses. Cook stated that these clauses were in effect during the 1978 through 1980 time period in 43.3% of its contracts. The DOE found that Cook would have been reimbursed for 43.3 percent of its increased fuel prices during the 1978-1980 time period, and therefore would not have experienced injury in those instances. Accordingly, the DOE determined that Cook is ineligible to receive a refund for 43.3% of its purchase volumes during the time period that price escalator clauses were operable, 1978 through 1980. The total refund granted in this Decision is \$12,764. Cook will receive additional refunds once more crude oil monies become available.

Costa Auto Repair, 12/1/88, RC272-1

The DOE issued a Supplemental Order rescinding the refund granted to Costa Auto Repair in *Jerry Weatherhold*, Case Nos. RF272-23000 *et al.*, (August 10, 1988). In *Jerry Weatherhold*, the DOE granted refunds from crude oil overcharge funds to 113 claimants based on their purchases of refined petroleum products during the period August 19, 1973 through January

27, 1981. The DOE subsequently determined, however, that Costa Auto Repair was a retailer, not an end-user, of petroleum products, and therefore required to submit detailed proof of injury to receive a crude oil refund. As Costa had not attempted to demonstrate injury, the refund was rescinded. Due to the small amount of the refund (\$70), the firm will not be required to return it. However, no further refunds will be granted to Costa.

Exxon Corporation/Anthony Scarlato et al., 11/28/88, RF307-2517 et al.

The DOE issued a Decision and Order concerning 48 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$25,540 (\$22,344 principal plus \$3,196 interest).

Exxon Corporation/B&D Exxon SVC 5-8701 et al., 12/2/88, RF307-423 et al.

The DOE issued a Decision and Order concerning 49 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$26,280 (\$22,988 principal plus \$3,292 interest).

Exxon Corporation/Beheler Exxon et al., 12/2/88, RF307-211 et al.

The DOE issued a Decision and Order concerning 29 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$25,402 (\$22,220 principal plus \$3,182 interest).

Exxon Corporation/Bill Ballard Exxon et al., 11/29/88, RF307-1 et al.

The DOE issued a Decision and Order concerning 10 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the

applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$5,747 (\$5,027 principal plus \$720 interest).

Exxon Corporation/Collier Oil Co., Inc. et al., 11/28/88, RF307-2045 et al.

The DOE issued a Decision and Order concerning 10 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$19,911 (\$17,418 principal plus \$2,493 interest).

Exxon Corporation/David J. Sina et al., 11/29/88, RF307-1839 et al.

The DOE issued a Decision and Order concerning 38 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than 5,000 or an end-user of Exxon products. Each applicant was found to be eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$26,317 (\$23,021 principal plus \$3,296 interest).

Exxon Corporation/Etna Exxon et al., 12/1/88, RF307-3102 et al.

The DOE issued a Decision and Order concerning 49 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than 5,000 or an end-user of Exxon products. Each applicant was found to be eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$33,855 (\$29,614 principal plus \$4,241 interest).

Exxon Corporation/Jim's Exxon et al., 11/30/88, RF307-1129 et al.

The DOE issued a Decision and Order concerning 32 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than 5,000 or an end-user of Exxon products. Each

applicant was found to be eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$24,721 (\$21,629 principal plus \$3,092 interest).

Exxon Corporation/Ken Thompson Oil Co. et al., 12/2/88, RF307-3638 et al.

The DOE issued a Decision and Order concerning 41 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$34,896 (\$30,528 principal plus \$4,368 interest).

Exxon Corporation/Logan Oil Company, Inc. L.A. Lard Oil Company, Milford Oil Co., Inc., 12/1/88, RF307-1240, RF307-3849, RF307-3871

The DOE issued a Decision and Order concerning Applications for Refund filed by Logan Oil Company (Logan), L.A. Lard Oil Co. (Lard), and Milford Oil Co., Inc. (Milford) in the Exxon Corporation special refund proceeding. Each firm purchased directly from Exxon and was a reseller of Exxon products. Each firm's allocable share exceeded \$5,000. Instead of making an injury showing to receive its full allocable share, Logan, Lard, and Milford each elected to receive \$5,000 or 40 percent of its allocable share, whichever was greater. In this case, two of the applicants (Logan and Milford) received \$5,716 (\$5,000 principal plus \$716 interest) and one applicant (Lard) received \$5,740 (\$5,021 principal and \$719 interest).

Exxon Corporation/Rachel Oil Company et al., 12/1/88, RF307-1668 et al.

The DOE issued a Decision and Order concerning seven Applications for Refund filed in the Exxon Corporation special refund proceeding. Each firm purchased directly from Exxon and was a reseller of Exxon products. Each firm's allocable share exceeds \$5,000. Instead of making an injury showing to receive its full allocable share, each applicant elected to receive either 40 percent of its allocable share or \$5,000, whichever is greater. The sum of the refunds granted in this Decision is \$40,798 (\$35,688 principal plus \$5,110 interest).

Exxon Corporation/Rock Springs Superette et al., 12/1/88, RF307-3013 et al.

The DOE issued a Decision and Order concerning seven Applications for

Refund filed in the Exxon Corporation special refund proceeding. Each of the applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$4,473 (\$3,913 principal plus \$560 interests).

Gates Rubber Company, 12/1/88, RF272-310

The Department of Energy approved the Application for Refund filed in the crude oil overcharge refund proceeding by Gates Rubber Company, an end-user of refined petroleum products. The applicant calculated its purchase volume by reviewing accounting records showing its purchases of No. 2 fuel oil, No. 6 fuel oil, gas turbine distillate oil, and No. 2 diesel fuel. The amount of the refund was \$3,070.

Gulf Oil Corporation/A.R. Fuels, Inc., et al., 12/2/88, RF300-673, et al.

The DOE issued a Decision and Order concerning five Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision, which includes both principal and interest, is \$63,096.

Gulf Oil Corporation/Farmers Propane Gas Company, Inc., et al., RF300-4907 et al.

The DOE issued a Decision and Order concerning 13 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$224,111.

Gulf Oil Corporation/Floyd Rogers, et al., 11/28/88, RF300-1693, et al.

The DOE issued a Decision and Order concerning 145 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision, is \$236,182.

Gulf Oil Corporation/Georgia Power Company, 12/1/88, RF300-3103

The DOE issued a Decision and Order concerning the Application for Refund filed in the Gulf Oil Corporation special refund proceeding by Georgia Power Company, a regulated public utility. Georgia Power successfully documented its purchases of 234,072,379 gallons of covered petroleum products. Georgia

Power also certified that it will notify its appropriate state regulatory agency of any refund it receives and that it will pass through the amount of the refund to its customers on a dollar for dollar basis. The total amount of the refund granted to Georgia Power is \$191,939.

Gulf Oil Corporation/J.D. Melton Gulf Station et al., 12/2/88, RF300-1324 et al.

The DOE issued a Decision and Order concerning 115 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$178,388.

Gulf Oil Corporation/Luczan and Ramsoosingh, 12/1/88, RF300-10620

The DOE issued a Supplemental Order concerning an Application for Refund submitted in the Gulf Oil Corporation special refund proceeding. The DOE granted a refund of \$547 to Luczan and Ramsoosingh (Case No. FR300-1044) in *Gulf Oil Corp./City of Moultrie*, 18 DOE ¶ 85,134 (1988). The DOE was unable to locate the applicant for the purpose of awarding the refund. The Supplemental Order therefore rescinded the refund.

Gulf Oil Corporation/Major Management Company, et al., 12/1/88, FR300-3439, et al.

The DOE issued a Decision and Order concerning 21 Applications for Refund in the Gulf Oil Corporation refund proceeding. The 21 firms were related by common ownership during the refund period, and the DOE determined that their applications should be considered together for the purpose of analysis. Under the small claims presumption of injury, the applicants were approved a total refund of \$6,406, representing \$5,000 in principal and \$1,604 in interest.

Gulf Oil Corporation/PIB, Inc. USA Gas, Inc. PEH, Inc., 12/1/88, RF300-1461, RF300-10613, RF300-10614

The DOE issued a Supplemental Decision and Order concerning an Applications for Refund filed by three firms that purchased products covered by a consent order that the DOE entered into with Gulf Oil Corporation. In a previous Decision and Order, *Gulf Oil Corp./Belcher's Grocery Store*, 18 DOE ¶ 85,233 (1988), the DOE granted two applicants, U.S.A. Gas, Inc. (RF300-1462) (USA) and PEH, Inc. (RF300-1463) (PEH), refunds of \$2,272 and \$4,376, respectively. It came to the agency's attention that USA and PEH were affiliated with each other and another applicant, P.I.B., Inc. (Case No. RF300-

1461) (PIB). Because the DOE generally considers applications by related corporate entities to be a single claim, USA's, PEH's, and PIB's requests for refunds were considered on a combined volume basis. Therefore, the refunds granted to USA and PEH in the November 17, 1988 Decision were rescinded. In this Decision, PIB, USA, and PEH were granted a total refund of \$6,404, representing \$5,000 in principal and \$1,406 in interest, under the small claims presumption of injury.

Gulf Oil Corporation/Potomac Electric Power Company, et al., 11/29/88, RF300-5260, et al.

The DOE issued a Decision and Order concerning an Application for Refund submitted by a public utility in the Gulf Oil Corporation special refund proceeding. The application was decided using a presumption of injury and the applicant was required to pass the refund received through to its customers and to notify the appropriate regulatory body of the receipt of refund money. The refund granted in this Decision is \$100,831.

Morton Thiokol, Inc., Louisiana Division, 11/28/88, RF272-8754

The DOE issued a Decision and Order concerning an Application for Refund filed by Morton Thiokol, Inc., Louisiana Division, in connection with the Subpart

V crude oil refund proceedings. The DOE determined that the applicant was reimbursed on a dollar-for-dollar basis for the full cost of its purchases during the crude oil price control period. Therefore, the DOE concluded that the applicant was not injured by any crude oil overcharges associated with the gallons purchased.

Murphy Oil Corporation/McCurry Oil Corp., et al., 11/30/88, RF309-200 et al.

The DOE issued a Decision and Order granting 50 Applications for Refund filed in the Murphy Oil Corporation special refund proceeding. Each of the applicants purchased directly from Murphy and was either a reseller whose allocable share was less than \$5,000 or an end-user of Murphy products. Accordingly, each applicant was granted a refund equal to its full allocable share plus a proportionate share of the interest that has accrued on the Murphy escrow account. The sum of the refunds granted in the Decision was \$67,559 (\$60,218 principal plus \$7,341 interest).

Murphy Oil Corporation/Rau Corporation et al., 12/2/88, RF309-101 et al.

The DOE issued a Decision and Order granting an Application for Refund filed by 49 applicants, all purchasers of

refined petroleum products, in the Murphy Oil Corporation special refund proceeding. According to the procedures set forth in *Murphy Oil Corporation*, 17 DOE ¶85,782 (1988), each applicant was found to be eligible for a refund based on the volume of product it purchased from Murphy. The total refund approved in this Decision was \$70,823, representing \$63,126 in principal plus \$7,697 in accrued interest.

Murphy Oil Corporation/Welcome Traveler et al., 12/2/88, RF309-173 et al.

The DOE issued a Decision and Order granting an Application for Refund filed by 21 applicants, all purchasers of refined petroleum products, in the Murphy Oil Corporation special refund proceeding. According to the procedures set forth in *Murphy Oil Corporation*, 17 DOE ¶85,782 (1988), each applicant was found to be eligible for a refund based on the volume of product it purchased from Murphy. The total refund approved in this Decision was \$23,234, representing \$20,709 in principal plus \$2,525 in accrued interest.

Crude Oil End-Users

The Office of Hearings and Appeals granted crude oil overcharge refunds to end-user applicants in the following Decisions and Orders:

Name	Case No.	Date	No. of applicants	Total refund
City of Carrollton <i>et al.</i>	RF272-34210	11/30/88	47	\$16,499
De Rose Distributors <i>et al.</i>	RF272-31901	12/2/88	25	\$3,507

Dismissals

The following submissions were dismissed:

Name	Case No.
City of Calumet City	RF272-37636
Crawford Electric Coop., Inc.	RF272-54399
Dee's Gulf	RF300-10548
F.J. Niese Farms, Inc.	RF272-52434
Hayes Service Center	RF300-10547
Jack K. Smith	RF272-46681
Lee's Gulf Service	RF300-8844
Leo Bogner	RF272-73126
Martx Exxon	RF307-891
Modern Oil Co., Inc.	RF300-9017
Phillips County Highway Department	RF272-27986
Pines Service Station	RF300-8856
Robbie A. White	RF272-44078
Robert Shreve Fuel Co.	RF300-10410
Stanton County	RF272-42114
Strand Farms	RF272-42132
Town and Country Exxon	RF307-1791
Waldensain Bakeries, Inc.	RF300-8987
Walter Udelhoven	RF272-53513
Warren Pennington Circle Exxon	RF307-849

Name	Case No.
Woodrow W. Modlin	RF307-6165
Unified School District No. 292	RF272-42135

Copies of the full text of these decisions and orders are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except federal holidays. They are also available in *Energy Management: Federal Energy Guidelines*, a commercially published loose leaf reporter system.

January 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals
[FR Doc. 89-2720 Filed 2-3-89; 8:45 am]

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Office of Hearings and Appeals

Issuance of Decisions and Orders During the Week of December 19 Through December 23, 1988

During the week of December 19 through December 23, 1988 the decisions and orders summarized below were issued with respect to appeals and applications for other relief filed with the Office of Hearings and Appeals of the Department of Energy. The following summary also contains a list of submissions that were dismissed by the Office of Hearings and Appeals.

Appeal

Hanford Education Action League, 12/20/88, KFA-0232, KFA-0233

The Hanford Education Action League (HEAL) filed Appeals from determinations issued by the Director of the DOE's Executive Secretariat and the

Director of the Office of Communications of DOE's Richland Operations Office. These determinations denied Requests for Information which HEAL had submitted under the Freedom of Information Act. HEAL requested from the Executive Secretariat copies of the minutes and all reports from a meeting on the Atomic Energy Commission purportedly held on December 12-14, 1949. HEAL requested from the Office of Communications documents regarding testing of school children in Eastern Washington for thyroid disorders and other health problems. In considering the Appeals, the DOE found that adequate searches had been conducted in response to each of HEAL's requests. Accordingly, both Appeals were denied.

Interlocutory Order

Kenneth Walker, Economic Regulatory Administration, 12/20/88, KRZ-0084, KRZ-0085, KRX-0060, KRX-0061

The Office of Hearings and Appeals issued an interlocutory order concerning a number of motions pertaining to the enforcement proceeding involving Southwestern States Marketing Corporation and Kenneth Walker. OHA's first ruling dealt with a Motion to Vacate filed by Mr. Walker. Walker had sought three forms of relief in his motion: revocation of an interlocutory order issued by OHA on March 3, 1988 in connection with the enforcement proceeding; recusal of the OHA officials currently responsible for handling the enforcement case; and reassignment of the enforcement case to another tribunal. Identifying Walker's motion in its entirety, OHA first found that OHA did not rely on or accord any weight to a criminal matter involving Walker in reaching any determination in its March 3 Order or in any other decision rendered in connection with the case. Thus, OHA held there to be no basis for revoking the March 3 Order on the ground that OHA had improperly relied on a criminal matter in determining the existence of a *prima facie* case of liability against Walker. Next, OHA determined that it did not act in an arbitrary and capricious manner when it decided that the totality of evidence in the record demanded further probing into the issue of Walker's involvement in Southwestern. OHA also found that it never, in reality or in appearance, prejudged the merits of the PRO. Based on these two findings, OHA decided that there was no basis to warrant (1) the recusal of OHA personnel under any reasonable standard of administrative agency practice or (2) the transfer of

the enforcement case to another tribunal.

OHA's second ruling concerned a Motion for Sanctions against Walker which the Economic Regulatory Administration filed. In denying ERA's motion, OHA stated that it was unconvinced that Walker had acted in a recalcitrant manner in choosing not to submit evidentiary material that OHA had twice requested. OHA also found that the numerous motions Walker submitted in lieu of the evidentiary materials were not frivolous. These same motions, OHA held, were not filed in bad faith.

Lastly, OHA decided *sua sponte* to amend the Proposed Remedial Order issued to Walker and Southwestern to delete all references to criminal matters pertaining to Walker and Southwestern that appear in that charging document. OHA also decided *sua sponte* to strike those same references to criminal matters from any document tendered or issued in connection with this case. In taking this *sua sponte* action, OHA concluded that the administrative process would be prejudiced if the criminal references remained in the record of the enforcement proceeding.

Refund Applications

Atlantic Richfield Company/Conard Yeats, et al., 12/22/88, RF304-1900, et al.

The DOE issued a Decision and Order concerning 55 Applications for Refund filed in the Atlantic Richfield Company (ARCO) special refund proceeding. As reseller/retailers claiming refunds of less than \$5,000 in principal or end users, each applicant is presumed to have been injured by ARCO's alleged overcharges. After examining the applications and supporting documentation, the DOE determined that the firms should receive refunds of \$96,867, representing \$76,577 in principal and \$20,290 in interest.

Atlantic Richfield Company/Eastern LPG Company, et al., 12/21/88, RF304-1800, et al.

The DOE issued a Decision and Order concerning 69 Applications for Refund filed in the Atlantic Richfield Company (ARCO) special refund proceeding. As reseller/retailers claiming refunds of less than \$5,000 in principal or end users, each applicant is presumed to have been injured by ARCO's alleged overcharges. After examining the applications and supporting documentation, the DOE determined that the firms should receive refunds of \$120,352, representing \$95,138 in principal and \$25,214 in interest.

Atlantic Richfield Company/Flud's Arco Service, 12/22/88, RF304-6436

The DOE issued a Decision and Order concerning an Application for Refund filed by Flud's Arco Service in the Atlantic Richfield Company (ARCO) special refund proceeding. The firm was unable to make a showing of injury as established in the ARCO proceeding but was presumed to have been injured as a reseller/retailer claiming refunds of less than \$5,000 in principal. After examining the application and supporting documentation, the DOE determined that the firm should receive refunds of \$2,087, representing \$1,646 in principal and \$441 in interest.

Atlantic Richfield Company/Johnson's Arco, et al., 12/20/88, RF304-1118, et al.

The DOE issued a Decision and Order concerning five Applications for Refund filed by one claimant in the Atlantic Richfield Company special refund proceeding. The applicant was a reseller/retailer that applied for a small claims presumption refund. In addition, the applicant documented the volume of its purchases from ARCO and, therefore, was presumed to have been injured and entitled to a refund. The DOE concluded that the applicant should receive a refund totalling \$5,715 representing \$4,518 in principal and \$1,197 in accrued interest.

Consolidated Edison Company of New York, et al., 12/22/88, RF272-283, et al.

Four investor-owned public utilities filed applications for refund in the Subpart V crude oil refund proceedings. A group of states filed objections to the applications, claiming that the applicants should not be eligible to receive refunds because they were not injured end-users. The states also claimed that the applicants should not be permitted to act as conduits for the distribution of refund benefits to their injured customers. The DOE rejected both of the states' arguments, finding that the applicants were not claiming a refund for themselves, but rather agreed to pass through to their customers the benefits of any refunds which they would receive. The DOE also found that the Settlement Agreement permitted utilities to receive refunds in Subpart V crude oil proceedings in order to distribute direct restitution to their injured customers. Accordingly, the applications were approved and the applicants were granted refunds totalling \$2,729,160.

City of Holyoke Gas and Electric, 12/22/88, RA272-1

OHA issued a supplemental order to the City of Holyoke Gas and Electric. OHA's original order instructed the comptroller to disburse an incorrect crude oil refund amount, and the supplemental order granted Holyoke an additional \$20.

David Graham Company, 12/22/88/, RF272-34976

The DOE issued a Decision and Order concerning an Application for Refund filed by the David Graham Company. The applicant requested a refund from crude oil overcharge funds collected by the DOE. In considering Graham's application, the OHA found that the firm had filed an Application for Refund from the Surface Transporters (ST) escrow. That application had included a properly executed ST Waiver in which Graham waived its rights to seek refunds in any crude oil Subpart V proceeding. Accordingly, Graham's Application for Refund was denied.

Delmarva Power Light Company, 12/22/88/, RF272-255

Delmarva Power and Light Company (Delmarva), an investor-owned public utility, filed an application for refund in the Subpart V crude oil refund proceedings. A group of states filed objections to Delmarva's application, claiming that the utility should not be eligible to receive a refund because it was not an injured end-user. The states also claimed that Delmarva should not be permitted to act as a conduit for the distribution of refund benefits to its injured customers. The DOE rejected both of the states' arguments finding that Delmarva was not claiming a refund for itself, but rather agreed to pass through to its customers the benefits of any refunds which it would receive. The DOE also found that the Settlement Agreement permitted a utility to receive refunds in Subpart V crude oil proceedings in order to distribute direct restitution to its injured customers. Accordingly, the DOE granted Delmarva a refund for its purchases of refined petroleum products. However, the DOE determined that Delmarva was not eligible to receive a refund in these proceedings for its crude oil purchases. The refund granted to Delmarva totaled \$376,790.

Edward Hines Lumber Co., et al., 12/22/88/, RF272-1696, et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to five claimants based on their respective purchases of refined petroleum products during the period August 19, 1973 through January 27, 1981. Each applicant used the petroleum products for various

commercial activities and each determined its claim by consulting actual purchase records or by using a reasonable estimation technique. As an end-user, each applicant was entitled to receive a refund of its full volumetric share. The refunds granted in this Decision total \$12,418.

Exxon Corporation/Genes Exxon et al., 12/20/88/, RF307-3926 et al.

The DOE issued a Decision and Order concerning 48 Applications for Refund filed in the Exxon Corporation special refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. Each applicant was found eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$26,258 (\$22,828 principal plus \$3,430 interest).

Exxon Corporation/Mary Curro, 12/22/88, RF307-6997

The DOE issued a Supplemental Order to Mary Curro (Curro) an applicant granted a refund in *Exxon Corp./Jim's Exxon* 18 DOE ¶ 85,289, Case No. RF307-3833 (November 30, 1988). The refund amount for Curro in the Appendix to that Decision and Order was found to be incorrect. Since it was calculated using an incorrect volume of refined petroleum products. Since the original refund had not yet been issued, the DOE rescinded the original refund and granted Curro the correct refund amount of \$279 (\$244 in principal and \$35 in interest).

Exxon Corporation/Tate Oil Products, 12/19/88, RF307-1467

The DOE issued a Decision and Order concerning an Application for Refund filed by Tate Oil Products in the Exxon Corporation special refund proceeding. Tate, a wholesale purchaser of Exxon products, purchased directly from Exxon and its allocable share is more than \$5,000. Tate did not demonstrate that it was injured by the alleged overcharges. However, in the Exxon proceeding a reseller applicant whose allocable share exceeds \$5,000 and who does not demonstrate that it was injured may receive as its refund the larger of \$5,000 or 40 percent of its allocable share up to \$50,000. In the present case, \$5,000 is greater. Accordingly, the refund granted in this Decision is \$5,751 (\$5,000 principal plus \$751 interest).

Exxon Corporation/Tuck's Grocery & Exxon et al., 12/20/88, RF307-4800 et al.

The DOE issued a Decision and Order concerning 30 Applications for Refund filed in the Exxon Corporation special

refund proceeding. Each of the Applicants purchased directly from Exxon and was either a reseller whose allocable share is less than \$5,000 or an end-user of Exxon products. The DOE determined that each applicant was eligible to receive a refund equal to its full allocable share. The sum of the refunds granted in this Decision is \$23,887 (\$20,766 principal plus \$3,121 interest).

Getty Oil Company/Morris Skelly Service, 12/22/88, RF265-2750 RF265-2751

Morris Skelly Service (Morris) filed an Application for Refund seeking a portion of the fund obtained by the DOE through a consent order entered into with the Getty Oil Company. Morris documented the volume of Getty motor gasoline and middle distillates which it purchased indirectly through the Detiefesen Oil Co. utilizing the procedures outlined in *Pioneer Corp./E.I. du Pont de Nemours & Co.*, 14 DOE ¶ 85,190 (1986) we calculated Morris' allocable share. The total amount of this refund is \$3,132, representing \$1,520 in principal and \$1,612 in accrued interest.

Gulf Oil Corporation/Blocker Oil Company, Inc., et al., 12/20/88, RF300-1589, et al.

The DOE issued a Decision and Order concerning 44 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$83,640.

Gulf Oil Corporation/City of White Settlement, et al. 12/21/88, RF300-1629, et al.

The DOE issued a Decision and Order concerning 88 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$112,779.

Gulf Oil Corporation/Florida Aviation Fueling Company, Inc., et al., 12/21/88, RF300-4836, et al.

The DOE issued a Decision and Order concerning Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$25,624.

Gulf Oil Corporation/Goddard Gulf Service Station et al., 12/19/88, RF300-6400, et al.

The DOE issued a Decision and Order concerning 73 Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury standard. The sum of the refunds granted in this Decision is \$160,580.

Gulf Oil Corporation/M & A Petroleum, et al., 12/20/88, RF300-2451, et al.

The DOE issued a Decision and Order concerning five Applications for Refund submitted in the Gulf Oil Corporation special refund proceeding. Each application was approved using a presumption of injury. The sum of the refunds granted in this Decision is \$43,682.

Mobil Oil Corp./Ridgeway Petroleum, Inc., 12/22/88, RR225-38, RR225-39

The DOE issued a Decision and Order granting a Motion for Reconsideration filed by Ridgeway Petroleum, Inc. (Ridgeway) in the Mobil Oil Corp. special refund proceeding. *Mobil Oil Corp.*, 13 DOE ¶85 339 (1985). Ridgeway sought reconsideration of a prior determination in which the DOE limited the firm's refund to the level-of-distribution presumptions established in *Mobil*. In that determination, the DOE concluded that the cost banks that Ridgeway approximated from firm-wide annual revenue data were an inadequate basis for rebutting the level-of-distribution presumptions. In its Motion for Reconsideration, Ridgeway successfully demonstrated that its cost banks were not, in fact, firm-wide, and that its approximation method underestimated the size of the cost banks. After applying a three-part competitive disadvantage test, the DOE concluded that Ridgeway should receive a full volumetric refund of \$15,577 on its purchases of Mobil motor gasoline. Taking into account the presumption-level refund previously granted to Ridgeway, the DOE granted the firm an additional \$10,083, representing \$8,042 in principal and \$2,041 in accrued interest.

Murphy Oil Corporation/Alabama Oil Company of Florence et al., 12/22/88, RF309-127 et al.

The DOE issued a Decision and Order granting an Application for Refund filed by 13 applicants, all purchasers of refined petroleum products, in the Murphy Oil Corporation special refund proceeding. According to the procedures set forth in *Murphy Oil Corporation*, 17 DOE ¶ 85,782 (1988), each applicant was found to be eligible for a refund based on the volume of product it purchased from Murphy. The total refund approved in this Decision was \$84,162,

representing \$74,552 in principal plus \$9,610 in accrued interest.

Murphy Oil Corporation/F.F. Faulk et al., 12/19/88, RF309-300 et al.

The DOE issued a Decision and Order granting applications filed by 48 purchasers of Murphy refined petroleum products in the Murphy Oil Corporation special refund proceeding. According to the procedures set forth in *Murphy Oil Corp.*, 17 DOE ¶ 85,782 (1988), each applicant was found to be eligible for a refund based on the volume of product it purchased from Murphy. The total amount of refund approved in this Decision was \$62,718, representing \$55,555 in principal plus \$7,163 in accrued interest.

Exxon Corporation/Widmaier Oil Co., 12/19/88, RF301-1958

The DOE issued a Decision and Order concerning an Application for Refund filed by Widmaier Oil Company in the Exxon Corporation special refund proceeding. The firm was a reseller and end-user that purchased directly from Exxon and did not attempt to prove injury with respect to the volumes that it purchased for resale. The firm's allocable share, based upon all gallons purchased, exceeded \$5,000. In the Exxon proceeding a reseller applicant whose allocable share exceeds \$5,000 may elect to receive as its refund the larger of \$5,000 or 40 percent of the portion of its allocable share attributable to volumes purchased for resale, up to \$50,000 plus 100 percent of any portion of its allocable share attributable to end-use. In the present case, \$5,000 is greater. Accordingly, the refund granted in this Decision is \$5,716 (\$5,000 principal plus \$716 interest).

Exxon Corporation/William H. Abbott, 12/22/88, RF307-7040

The DOE issued a Supplemental Decision and Order to William H. Abbott in the Exxon Corporation special refund proceeding based on the refunds he received in *Exxon Corp./Shark Hills Exxon* (Case No. RF307-3700 et al.) (November 16, 1988) and in his application. Mr. Abbott stated that he had not authorized any other firm or individual to file a refund application on his behalf in the Exxon proceeding. However, through a computer search for duplicates, the OHA found that Mr. Abbott had previously authorized Energy Refunds, Inc. (ERI) to file a refund application on his behalf and that a refund had been granted to ERI on his behalf on November 29, 1988. Accordingly, the DOE rescinded the refund granted to Mr. Abbott on November 16, 1988, since the application in that case contained a false statement,

and proposed to rescind the refund granted to ERI unless Mr. Abbott provided a satisfactory explanation for the filing of duplicate applications on his behalf.

Nassau Suffolk Lumber and Supply Corp., 12/20/88, RF272-12118

The DOE issued a Decision and Order granting the Application for Refund of Nassau Suffolk Lumber and Supply Corporation (Nassau) in the DOE's Subpart V crude oil refund proceeding. Nassau was a lumber and building materials supplier that submitted its total purchases of motor gasoline and No. 2 diesel fuel in dollars for the period August 19, 1973 to January 27, 1981. The applicant was an end-user of the petroleum products it purchased and thus was eligible for a refund. Using a previously approved national average of \$0.7025 per gallon, the DOE converted Nassau's dollar purchase amounts of motor gasoline into 824,061 gallons. Using pricing information available in the Energy Information Agency's *Monthly Energy Review*, the DOE derived a national average price, including taxes, for No. 2 diesel fuel of \$0.63901 per gallon. On the basis of that price, the DOE determined that Nassau consumed a total of 12,806 gallons of No. 2 diesel fuel. The total volume approved in this Decision was 836,867 gallons and the total refund granted was \$167.

National Helium Corp./Arizona, 12/22/88, RQ3-486

The DOE issued a Supplemental Order modifying a recent Decision and Order which granted the State of Arizona \$133,405 in second-stage refund monies. See *Vickers Energy Corp./Arizona*, 18 DOE ¶ 85,188 (Arizona). Because of errors made in calculating Arizona's second-stage refund, the DOE inadvertently granted the State \$2,167 more than the correct amount. Accordingly, the DOE rescinded *Arizona* as to the amount of second-stage monies granted, and granted Arizona a revised refund amount of \$131,238.

Putnam Hospital Center et al., 12/22/88, RF272-31741 et al.

The DOE issued a Decision and Order granting refunds from crude oil overcharge funds to 7 applicants based on their respective purchases of refined petroleum products during the period August 19, 1983, through January 27, 1981. Each applicant is a hospital and used petroleum products for various functions including heating, transportation, and cooking, and each determined its volume claim either by consulting actual purchase records or by

reasonably estimating its consumption. Each applicant was an end-user of the products it claimed and was therefore presumed by the DOE to have been injured. The sum of the refunds granted in this decision is \$4,566. All of the claimants will be eligible for additional refunds as additional crude oil overcharge funds become available.

Standard Oil Co. (Indiana)/New Mexico Perry Gas Processors, Inc./New Mexico, 12/22/88, RQ21-487, RQ183-488

The DOE issued a Supplemental Order rescinding part of the second-stage refund granted to the State of New Mexico in *Standard Oil Co. (Indiana)/New Mexico, 18 DOE ¶ 85,073 (1988) (New Mexico)*. In *New Mexico*, the DOE had granted the State \$205,424 in second-stage refund monies. It was later

discovered that this amount had been overstated by \$2,995. Accordingly, the State was ordered to remit the sum of \$2,995 to the DOE.

Total Petroleum, Inc./Hupp Oil Co. et al., 12/20/88, RF310-155, et al.

The DOE issued a Decision and Order concerning eleven Applications for Refund filed by purchasers of motor gasoline and/or No. 2 oils from Total Petroleum Inc. The applicants sought a portion of the settlement fund obtained by the DOE through a consent order entered into with Total. Under the standards established in *Total Petroleum, Inc., 17 DOE ¶ 85,542 (1988)*, the DOE granted refunds in this proceeding which total \$124,688 (\$108,574 principal and \$16,114 interest).

Vernelle Steinke, 12/22/88, RC272-15

On July 11, 1988, the DOE issued a Decision and Order granting a refund of \$27 to Vernelle Steinke (Steinke), Case No. RF272-19154. *Marvin Siebert, et al., Case Nos. RF272-19000, et al. (July 11, 1988)*. The DOE determined that this refund was a duplicate of the refund granted to Steinke, Case No. RF272-3882, on March 3, 1988. *Roger Kratzke, et al., 17 DOE ¶ 85,168*. Because, the figures in Case No. RF272-19154 are more accurate, the DOE issued a Supplemental Order rescinding the refund granted to Steinke in *Roger Kratzke, et al.*

Crude Oil End-Users

The Office of Hearings and Appeals granted crude oil overcharge refunds to end-user applicants in the following Decision and Order:

Name	Case No.	Date	No. of Applicants	Total refund
R.W. Sidley, Inc. et al.	RF272-18009	12/19/88	75	\$27,718

Dismissals

The following submissions were dismissed:

Name	Case No.
Alton Miller Cab No.	RF272-75089
Barbers Gulf Service	RF300-94
Basile & Cella Atlantic Station	RF304-5140
Belleys Atlantic Service	RF304-3481
Brandon West Gulf	RF300-85
Brosie's Gulf Service	RF300-9650
City of Fresno	RF272-33269
Covelli's A-1	RF304-3598
Cummings Gulf	RF300-10458
Ed's Gulf Service	RF300-10607
Garry's Service Station	RF300-8580
Golden Petroleum Company	RF304-1763
Gordon Service Center	RF300-428
Heath & Lull, Inc.	RF300-8456
Hi-Lo Corporation	RF292-7
Holiday West Gulf	RF300-137
John's Gulf	RF300-10555
Kenyon Oil Company, Inc.	RF304-1764
Lawes Coal Company, Inc.	RF300-996
Monhagen Gulf Service	RF300-177
Morris Oil Company	RF300-9292
Nu-Way Distributing Co.	RF292-6
Puritan Oil Company, Inc.	RF304-1765
Sea Island Gulf Service	RF300-8487
Stones Tire & Supply	RF300-8539
Tawas Area Schools	RF272-49462
Tuck Jones Gulf Service	RF300-285
Vernie L. Jordan	RF300-10578
Wilkinson Service Station	RF300-8002

Copies of the full text of these decisions and orders are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except

federal holidays. They are also available in *Energy Management: Federal Energy Guidelines*, a commercially published loose leaf reporter system.

January 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

[FR Doc. 89-2721 Filed 2-3-89; 8:45 am]

BILLING CODE 6450-01-M

Office of Hearing and Appeals

Issuance of Proposed Decision and Order During the Period of December 26, 1988, Through January 6, 1989

During the period of December 26, 1988, through January 6, 1989, the proposed decision and order summarized below was issued by the Office of Hearings and Appeals of the Department of Energy with regard to an application for exception.

Under the procedural regulations that apply to exception proceedings (10 CFR Part 205, Subpart D), any person who will be aggrieved by the issuance of a proposed decision and order in final form may file a written notice of objection within ten days of service. For purposes of the procedural regulations, the date of service of notice is deemed to be the date of publication of this Notice or the date an aggrieved person receives actual notice, whichever occurs first.

The procedural regulations provide that an aggrieved party who fails to file a Notice of Objection within the time

period specified in the regulations will be deemed to consent to the issuance of the proposed decision and order in final form. An aggrieved party who wishes to contest a determination made in a proposed decision and order must also file a detailed statement of objections within 30 days of the date of service of the proposed decision and order. In the statement of objections, the aggrieved party must specify each issue of fact or law that it intends to contest in any further proceeding involving the exception matter.

Copies of the full text of this proposed decision and order are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except federal holidays.

January 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

Brown Oil Company, Blue Mound, Illinois, KEE-0169, Reporting Requirements

Brown Oil Company (Brown) filed an Application for Exception from the requirement that it file Form EIA-782B, entitled "Resellers/Retailers' Monthly Petroleum Product Sales Report." In considering the Application, the DOE found that Brown's reporting burden was not significantly different from that of other firms participating in the EIA-

782B survey. On January 6, 1989, the Department of Energy issued a Proposed Decision and Order which determined that the exception request be denied. [FR Doc. 89-2722 Filed 2-3-89; 8:45am] BILLING CODE 6450-01-M

Office of Hearings and Appeals

Implementation of Special Refund Procedures

AGENCY: Office of Hearings and Appeals, Department of Energy.

ACTION: Implementation of special refund procedures.

SUMMARY: The Office of Hearings and Appeals of the Department of Energy announces the procedures for the disbursement of \$1,950,756.18 (plus accrued interest) obtained as a result of settlement agreements that the DOE entered into with the Lone Star Oil and Chemical Company (Case No. KEF-0106), a reseller of crude oil, and the Holly Corporation (Case No. KEF-0113), a producer of crude oil. The OHA has determined that the funds will be distributed in accordance with the DOE's Modified Statement of Restitutionary Policy Concerning Crude Oil Overcharges, 51 FR 27899 (August 4, 1986).

DATE AND ADDRESS: Applications for refund must be filed by October 31, 1989, and should be addressed to: Subpart V Crude Oil Overcharge Refunds, Office of Hearings and Appeals, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

FOR FURTHER INFORMATION CONTACT: Thomas L. Wicker, Deputy Director, Office of Hearings and Appeals, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-2390.

SUPPLEMENTARY INFORMATION: In accordance with 10 CFR 205.282(c), notice is hereby given of the issuance of the Decision and Order set out below. The Decision sets forth the final procedures that the DOE has formulated to distribute crude oil overcharge funds obtained from the Lone Star Oil and Chemical Company and the Holly Corporation. The funds are being held in interest-bearing escrow accounts pending distribution by the DOE.

The OHA has decided to distribute these funds in accordance with the DOE's Modified Statement of Restitutionary Policy Concerning Crude Oil Overcharges, 51 FR 27899 (August 4, 1986). Under the Modified Policy, crude oil overcharge monies are divided among the states, the federal government, and injured purchasers of refined products. Refunds to the states

will be distributed in proportion to each state's consumption of petroleum products during the period of price controls. Refunds to eligible purchasers will be based on the number of gallons of petroleum products which they purchased and the extent to which they can demonstrate injury.

Applications for refund must be filed by October 31, 1989, and should be sent to the address set forth at the beginning of this notice. The information which claimants should include in their applications is explained in the Decision, which immediately follows, and in *Ernest A. Allerkamp*, 17 DOE ¶ 85,079 at 88,177 (1988). Any claimant that has already filed a crude oil refund application need not file again.

Date: January 31, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

Decision and Order

January 31, 1989.

Names of Firms: Lone Star Oil and Chemical Company, Holly Corporation.

Dates of Filing: March 10, 1988, July 21, 1988.

Case Numbers: KEF-0106, KEF-0113.

Under the procedural regulations of the Department of Energy (DOE), the Economic Regulatory Administration (ERA) may request that the Office of Hearings and Appeals (OHA) formulate and implement special refund procedures. 10 C.F.R. § 205.281. These procedures are used to refund monies to those injured by actual or alleged violations of the DOE price regulations.

On March 10 and July 21, 1988, the ERA filed Petitions for the Implementation of Special Refund Procedures (the Petitions) with the Office of Hearings and Appeals (OHA). The March 10, 1988 Petition concerns the ERA's settlement of enforcement proceedings with the Lone Star Oil and Chemical Company (Lone Star) and the July 21, 1988 Petition concerns the ERA's settlement of enforcement proceedings with the Holly Corporation (Holly). In these Petitions, the ERA requests that the OHA formulate and implement procedures for distributing funds obtained through these settlements. See 10 CFR Part 205, Subpart V.

Lone Star and Holly have remitted a total of \$1,950,756.18 to the DOE pursuant to their settlement agreements. An additional \$101,104.46 in interest has accrued on that amount as of December 31, 1988. This Decision and Order establishes procedures for distributing the sum of this principal and interest, or \$2,051,860.64, and additional interest accruing in the Holly and Lone Star subaccounts after December 31, 1988.

During the period June 1978 through January 1980, Lone Star was a "reseller" of crude oil as that term is defined in 10 CFR 212.31. Lone Star was therefore subject to the provisions of the Mandatory Petroleum Price Regulations, 10 CFR Part 212. The ERA conducted an extensive audit of Lone Star's operations and found in a Proposed Remedial Order (PRO) that the firm had violated applicable DOE pricing regulations in its sales of crude oil. The PRO was issued as a final Remedial Order (RO) by the OHA on August 26, 1986. *Lone Star Oil and Chemical Company/Michael A. McAlister*, 14 DOE ¶ 83,044 (1986). Lone Star filed an appeal of the RO on October 10, 1986. *Appeal docketed No. 86-35-000* (Federal Energy Regulatory Commission, October 10, 1986). In order to settle the claims and disputes between Lone Star and the DOE that were raised in the RO, the two parties entered into a Consent Order on April 18, 1987 (the Lone Star Consent Order). In accordance with the terms of that Consent Order, Lone Star paid \$184,267.15 to the DOE on February 8, 1988.

Holly was a "producer" of crude oil as that term is defined in 10 CFR 212.31 and was also subject to Part 212 of the Mandatory Petroleum Price Regulations. During the period June 1979 through December 1980, Holly produced and sold crude oil from three properties located in Goliad and Wharton counties, Texas. The ERA conducted an extensive audit of Holly's operations and found in a PRO that the firm had violated applicable DOE pricing regulations in its sales of crude oil. This PRO was issued as a final RO by the OHA on March 29, 1985. *Holly Energy, Inc. and Holly Corporation*, 12 DOE ¶ 83,036 (1985). The Federal Energy Regulatory Commission affirmed the Remedial Order on November 26, 1985. *Holly Corporation and Holly Energy, Inc.*, 37 FERC ¶ 61,187 (1986).¹

In order to settle all claims and disputes between Holly and the DOE, the two parties entered into a Settlement Agreement on July 31, 1987. The Department of Justice agreed to the Settlement Agreement, modified by an Amendment. In accordance with the terms of the Amendment to the Settlement Agreement, Holly paid \$1,766,489.03 to the DOE on April 29, 1988.

Neither the Lone Star Consent Order nor the Holly amended Settlement

¹ Holly's action seeking judicial review of the Remedial Order was terminated when a Stipulation of Withdrawal was entered by the U.S. District Court for the District of Delaware on June 7, 1988.

Agreement makes any provision for the distribution of the funds remitted by the those firms. In its Petitions, the ERA states that it has been unable to identify persons injured by the alleged overcharges or the amount which any individual may be entitled to receive. The ERA therefore requests that OHA establish appropriate procedures for the distribution of the funds remitted by Lone Star and Holly in accordance with the provisions of 10 CFR Subpart V.

The Subpart V process is specifically designed to be used in situations where the DOE cannot readily identify the persons who may have been injured as a result of actual or alleged violations of the regulations or ascertain the amount of the refund each person should receive. For a more detailed discussion of Subpart V and the authority of the OHA to fashion procedures to distribute refunds, see *Office of Enforcement*, 9 DOE ¶ 82,508 (1981), and *Office of Enforcement*, 8 DOE ¶ 82,597 (1981). We have considered the ERA's request to implement Subpart V procedures with respect to the monies received from Lone Star and Holly, and have determined that such procedures are appropriate.

I. Background

On July 28, 1986, as a result of the court-approved Settlement Agreement in *In Re: The Department of Energy Stripper Well Exemption Litigation*, M.D.L. No. 378, the DOE issued a Modified Statement of Restitutionary Policy (MSRP), providing that crude oil overcharge revenues will be divided among the States, the United States Treasury, and eligible purchasers of crude oil and refined products. 51 FR 27899 (August 4, 1986). Eighty percent of the funds, and any monies remaining after all valid claims are paid, are to be disbursed equally to the states and federal government for indirect restitution. The OHA has been applying the MSRP to all Subpart V proceedings involving alleged crude oil violations. See Order Implementing the MSRP, 51 FR 29689 (August 20, 1986). That Order provided a period of 30 days for the filing of any objections to the application of the MSRP, and solicited comments concerning the appropriate procedures to follow in processing refund applications in crude oil refund proceedings.

On April 10, 1987, the OHA issued a Notice analyzing the numerous comments which it received in response to the August 1986 Order. 52 FR 11737. The Notice set forth generalized procedures and provided guidance to assist claimants that wish to file refund applications for crude oil monies under

the Subpart V regulations. All applicants for refunds would be required to document their purchase volumes of petroleum products during the period of price controls and to prove that they were injured by the alleged overcharges. The Notice indicated that end-users of petroleum products whose businesses are unrelated to the petroleum industry will be presumed to have absorbed the crude oil overcharges, and need not submit any further proof of injury to receive a refund. Finally, we stated that refunds would be calculated on the basis of a volumetric refund amount derived by dividing crude oil violation amounts of the total consumption of petroleum products in the United States during the period of price controls. The numerator would include the crude oil overcharge monies that were in the DOE's escrow account at the time of the settlement and a portion of the funds in the M.D.L. 378 escrow at the time of the settlement.

The DOE has applied these procedures in numerous cases since the April 1987 Notice, see, e.g., *Shell Oil Co.*, 17 DOE ¶ 85,204 (1988), and *Ernest A. Allerkamp*, 17 DOE ¶ 85,079 (1988) (*Allerkamp*), and the procedures have been approved by the United States District Court for the District of Kansas. Various states had filed a Motion with the Court, claiming that the OHA violated the Settlement Agreement by employing presumptions of injury for end-users and by improperly calculating the refund amount to be used in those proceedings. On August 17, 1987, Judge Theis issued an Opinion and Order denying the States' Motion in its entirety. The court concluded that the Settlement Agreement "does not bar OHA from permitting claimants to employ reasonable presumptions in affirmatively demonstrating injury entitling them to a refund." *In Re: The Department of Energy Stripper Well Exemption Litigation*, 871 F. Supp. 1318, 1323 (D. Kan. 1987). The court also ruled that, as specified in the April 1987 Notice, the OHA could calculate refunds based on a portion of the M.D.L. 378 overcharges. *Id.* at 1323-24. The states appealed the latter ruling, and the Temporary Emergency Court of Appeals affirmed Judge Theis' decision. *In Re: The Department of Energy Stripper Well Exemption Litigation*, 3 Fed. Energy Guidelines ¶ 26,606 (Temp. Emer. Ct. App. 1988).

II. The Proposed Decisions and Orders

On October 12, 1988, the OHA issued a Proposed Decision and Order (PD&O) establishing tentative procedures to distribute the alleged crude oil violation amounts obtained from Holly. On

November 16, 1988, the OHA issued a PD&O establishing identical tentative procedures to distribute the monies obtained from Lone Star. The OHA tentatively concluded that these monies should be distributed in accordance with the MSRP and the April 10, 1987 Notice. Pursuant to the MSRP, the OHA proposed to reserve initially 20 percent of the alleged crude oil violations amounts to satisfy claims from injured parties that purchased refined petroleum products between August 19, 1973 and January 31, 1981 (the crude oil price control period). The remaining 80 percent of the funds would be distributed to the state and federal governments for indirect restitution. Once all valid claims are paid, by remaining funds in the claims reserve also would be divided between the state and federal governments. The federal government's share of the unclaimed funds will ultimately be deposited into the general fund of the Treasury of the United States.

In the PD&O's, the OHA proposed to require applicants for refund to document their purchase volumes of petroleum products during the period of price controls and to prove that they were injured by the alleged crude oil overcharges. The PD&O's stated that the petroleum products whose businesses are unrelated to the petroleum industry could use a presumption that they absorbed the crude oil overcharges, and need not submit any further proof of injury to receive a refund. The OHA also proposed to calculate refunds on the basis of a volumetric refund amount, as described in the April 10, 1987 Notice. Comments were solicited regarding the tentative distribution process set forth in the PD&O's.

III. Discussion of the Comments Received

No comments were received by the OHA concerning the Lone Star PD&O. In response to the Holly PD&O, the OHA received comments from Philip P. Kalodner as counsel for six electric utilities, 14 foreign-flag shipping companies, and four pulp and paper manufacturers. Mr. Kalodner's clients are all potential recipients of crude oil refunds. These comments consist of a 12 page brief originally filed by Mr. Kalodner in the OHA proceeding involving Salomon Inc., *et al.*, Case No. KEF-0109 *et al.* (the Salomon brief), and a five page supplemental brief. In these comments, Mr. Kalodner contends that the OHA should not distribute 80 percent of the alleged crude oil violation amounts to the states and federal government. According to Mr. Kalodner,

such a distribution will "preclude full direct restitution to claimants." Salomon brief at 4. Mr. Kalodner claims that the 20 percent reserve is insufficient to satisfy all of the legitimate claims that have been or will be filed in these proceedings. Mr. Kalodner asserts that both the DOE and the states assured the United States District Court for the District of Kansas that the amount reserved for the claims process would be adequate to provide refunds for all successful claimants. "Having provided that assurance in order to obtain approval of the Court of the Final Settlement Agreement and the benefits to themselves, the states and the DOE are required by the doctrine of judicial estoppel to make good on that assurance." Salomon brief at 5.

The arguments presented by Mr. Kalodner in the Salomon brief have been considered and rejected by the OHA in *New York Petroleum, Inc., et al.*, 18 DOE ¶ 85,435 at 88,700-01 (1988) (*New York Petroleum*). As we stated in that decision and order, the arguments contained in the Salomon brief concerning the alleged insufficiency of the 20 percent reserve are completely unsupported by any solid evidence. Moreover, it is the position of OHA that the 20 percent set aside is not a discretionary figure but is the upper limit for that reserve as mandated by the following terms of the Settlement Agreement:

OHA may reserve a reasonable portion of funds from each such proceeding to satisfy potentially provable claims of identifiable injured claimants who have not waived their claims, but such reserve shall not exceed 20 percent of the monies in such proceeding and amounts in excess of the reserve shall be distributed while awaiting completion of the first stage refund proceedings. The percentage of the reserve will be altered * * * periodically * * * to reflect the amount of reserve that is warranted and sufficient to provide adequate funding for eligible first-stage claims, and will be lowered as justified by claims experience as a consequence of this Agreement.

Settlement Agreement at IV.B.6, 6 Fed Energy Guidelines ¶ 90,509 at 90,665 (emphasis added).

Thus the OHA may not set aside more than 20 percent of alleged crude oil violation amounts for direct refunds to injured claimants. The OHA may reduce the size of this reserve, but it may not raise the reserve above 20 percent of the funds received. *New York Petroleum*, 18 DOE at 88,701; *A. Tarricone, Inc.*, 15 DOE ¶ 85,495 at 88,893 (1987) (*Tarricone*). The remainder of the crude oil violation amounts must be distributed to the states and federal

government prior to the completion of the refund claims process.

An identical reading of this portion of the Settlement Agreement was recently made by the United States District Court for the District of Delaware in *Getty Oil Company v. The Department of Energy, et al.*, Civil Action No. 77-434 MMS, decided December 28, 1988 (*Getty*). In that decision, the court rejected the contention of various amici petitioners that they possessed an absolute right under the Settlement Agreement to the availability of adequate funds for successful individual claimants. In this regard the court noted the following:

The [settlement] agreement, however, does not provide for an upward adjustment based upon the amount of claims. Rather it provides for only a maximum reserve of 20 percent for individual claimants and a provision for a downward adjustment if the 20 percent is not distributed. *Stripper Well Agreement*, Dkt. 263 at IV.B.6. Thus based on the *Stripper Well Agreement* itself amici cannot claim a right to a refund greater than 20 percent of the fund.

Getty, slip opinion at 14. Accordingly, we find no merit in Mr. Kalodner's assertions concerning the inadequacy of the 20 percent reserve for individual claimants.²

As we stated in the Holly and Lone Star PD&O's, we have decided to reserve initially the full 20 percent of the alleged crude oil violation amounts subject to those determinations in order to ensure that sufficient funds will be available for refunds to injured claimants. We will therefore adopt the procedures as proposed in the PD&O's, and order the disbursement to the states and the federal government of 80 percent of the alleged crude oil violation amounts received from Lone Star and Holly.

IV. The Refund Procedures

A. Refund Claims

After considering the comments received concerning the Holly PD&O, we have concluded that the \$1,950,756.18 in funds involved in the Holly and Lone Star proceedings, plus the accrued interest on these funds, should be distributed in accordance with the crude oil refund procedures previously discussed. Accordingly, we have decided to reserve the full 20 percent, or \$390,151.24, of the alleged violations

² The comments submitted by Mr. Kalodner also suggest that the OHA add various amounts to the numerator of the volumetric formula in order to increase the size of refunds. These suggestions were previously considered and rejected in *Allerkamp*, 17 DOE at 88,174-75. See also *New York Petroleum*, 18 DOE at 88,701, note 3. Mr. Kalodner has presented no new arguments to justify a reconsideration of those issues in this determination.

amounts, plus a proportionate share of the accrued interest, for direct restitution to claimants that purchased refined petroleum products during the crude oil price control period. The amount of the reserve may be adjusted downward later if circumstances warrant such action.

The process which the OHA will use to evaluate claims based on crude oil violations will be modeled after the process the OHA has used to evaluate claims based on alleged refined product overcharges pursuant to 10 CFR Part 205, Subpart V, *Mountain Fuel Supply Co.*, 14 DOE ¶ 85,475 (1986) (*Mountain Fuel*). As in non-crude oil cases, applicants will be required to document their purchase volumes and to prove that they were injured by the alleged violations. (i.e. that they did not pass through the alleged overcharges to their customers). We will apply the standards for showing injury that the OHA has developed in analyzing non-crude oil claims. See, e.g., *Dorchester Gas Corp.*, 14 DOE ¶ 85,240 (1986). These standards include a finding that end-users and ultimate consumers whose businesses are unrelated to the petroleum industry were injured by a consent order firm's alleged overcharges. From our experience with Subpart V refund proceedings, we believe that potential claimants will fall into the following categories: (1) End-users, i.e., consumers who used refined petroleum products; (2) regulated non-petroleum industry entities that used refined petroleum products in their businesses, or cooperatives that purchased refined petroleum products for their businesses; and (3) refiners, resellers or retailers who resold refined petroleum products.

In establishing the procedures which govern this refund proceeding, we adopt certain presumptions that will permit claimants to participate in the refund process without incurring inordinate expense and will enable the OHA to consider refund applications in the most efficient manner possible. *American Pacific International*, 14 DOE ¶ 85,158 (1986). First, we presume that the alleged overcharges were dispersed equally in all sales of refined products made during the period of crude oil price controls and that refunds should therefore be made on a volumetric per gallon basis. A volumetric refund assumption is sound because of the DOE price regulations generally required a regulated firm to account for increased costs on a firm-wide basis in determining its prices.

We also adopt a number of injury presumptions that will simplify and streamline the refund process. These

presumptions excuse members of certain applicant categories from proving that they were injured by Holly's alleged overcharges. Applicants who were end-users or ultimate consumers of petroleum products, whose business are unrelated to the petroleum industry, and who were not subject to the DOE price regulations are presumed to have absorbed rather than passed on alleged crude oil overcharges. In order to receive a refund, end-users need not submit any further evidence of injury beyond volumes of product purchased. See *Tarricone*, 15 DOE at 88,893-96. The end-user presumption of injury is rebuttable, however. *Berry Holding Company*, 16 DOE ¶ 85,405 at 88,797. If an interested party submits evidence which is of sufficient weight to cast serious doubt on the end-user presumption, the applicant will be required to produce further evidence of injury.

Firms outside the petroleum industry whose prices for goods and services were regulated by a government agency or by the terms of a cooperative agreement need not demonstrate injury as a result of alleged overcharges on refined products. We will require such applicants to certify that they will pass any refund received through to their customers and provide us with a detailed explanation of how they plan to accomplish this restitution. We will also require them to explain how they will notify the appropriate regulatory body or membership group of their receipt of the refund money. See *Office of Special Counsel*, 9 DOE ¶ 82,538 at 85,203 (1982). A cooperative's sales of petroleum products to non-members will be treated in the same manner as sales by other resellers. Cooperatives should therefore provide the DOE with a breakdown of their sales volumes to members and non-members.

Reseller and retailer claimants must submit detailed evidence of injury, and may not rely on the presumptions of injury utilized in refund cases involving refined petroleum products. They can, however, use econometric evidence of the type employed by the OHA in the *Stripper Well Report*. Applicants who executed and submitted a valid waiver pursuant to one of the escrows established in the Settlement Agreement have waived their rights to apply for crude oil refunds under Subpart V. *Boise Cascade Corp.*, 16 DOE ¶ 85,214 at 88,411 (1987); *Sea-Land Service, Inc.*, 16 DOE ¶ 85,496 at 88,991 n. 1 (1987).

Refunds to eligible claimants who purchased refined petroleum products will be calculated on the basis of a volumetric refund amount derived by

dividing the combined Lone Star and Holly refund pool of \$1,950,756.18 by the total consumption of petroleum products in the United States during the crude oil price control period (2,020,997,335,000 gallons). *Mountain Fuel*, 14 DOE at 88,867. This approach reflects the fact that crude oil overcharges were spread to every region by the Entitlements Program.³ The volumetric amount for the crude oil pool established in the Lone Star and Holly proceedings is therefore \$0.00000096525 per gallon of refined products purchased (\$1,950,756.18/2,020,997,335,000 = \$0.00000096525).

As we stated in previous Decisions, a crude oil refund applicant will be required to submit only one application for crude oil overcharge funds. See *Allerkamp*, 17 DOE at 88,176. Any party that has previously submitted a refund application in crude oil refund proceedings need not file another application; that application will be deemed to be filed in all crude oil proceedings finalized to date. The volumetric refund amount will be increased as additional crude oil violation amounts are received in the future. Applicants may be required to submit additional information to document their refund claims for these future amounts. Notice of any additional amounts available in the future will be published in the *Federal Register*.

Any party who has not previously submitted a refund application in the crude oil refund proceeding may submit such an application to the OHA at this time. The application should specifically identify the volumes of petroleum products for which a refund is being claimed and provide information concerning the applicant's use of the petroleum products. Several recent OHA decisions have contained detailed discussions of the suggested contents of a crude oil refund application. *New York Petroleum*, 18 DOE at 88,704-05; *Allerkamp*, 17 DOE at 88,177; *Tarricone*, 15 DOE at 88,898. All applications should be typed or printed and clearly labelled "Application for Crude Oil Refund." Each applicant must submit an original and one copy of the application, which should be mailed to the following address:

³ The Department of Energy established the Entitlements Program to equalize access to the benefits of crude oil price controls among all domestic refiners and their downstream customers. To accomplish this goal, refiners were required to make transfer payments among themselves through the purchase and sale of "entitlements." This balancing mechanism had the effect of evenly dispersing overcharges resulting from crude oil miscalculations throughout the domestic refining industry. See, e.g., *Amber Refining, Inc.*, 13 DOE ¶ 85,217 (1985).

Subpart V Crude Oil Overcharge Refunds, Office of Hearings and Appeals, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

Although an applicant need not use any special application form to apply for a crude oil refund, a suggested form has been prepared by the OHA and may be obtained by sending a written request to the address listed above.

B. Payment to the States and the Federal Government

Under the terms of the MSRP, the remaining 80 percent of the Lone Star and Holly payments to the DOE, or \$1,560,604.94, plus \$80,883.57 in interest through December 31, 1988, or \$1,641,488.51, will be disbursed equally to the state and federal governments for indirect restitution. We will direct the DOE's Office of the Controller to separate and divide this amount, and to distribute \$820,744.26 to the states crude oil tracking account and \$820,744.26 to the federal government crude oil tracking account. The states and the federal government will also receive 80 percent of the interest accruing in the Lone Star and Holly subaccounts from January 1, 1989 through the date on which the funds are transferred. In the near future, we will issue a Decision and Order directing the DOE's Office of the Controller to make the appropriate disbursements to the individual states from their respective subaccount. This future Order is necessary to improve our ability to track the various disbursements to the states. Refunds to the states will be in proportion to the consumption of petroleum products in each state during the period of price controls. The share or ratio of the funds which each state will receive is contained in Exhibit H of the Settlement Agreement. When disbursed, these funds will be subject to the same limitations and reporting requirements as all other crude oil monies received by the state under the Settlement Agreement.

It is Therefore Ordered That:

(1) Applications for Refund from the alleged crude oil overcharge funds remitted by the Lone Star Oil and Chemical Company and the Holly Corporation may now be filed.

(2) All applications submitted pursuant to paragraph (1) above must be filed no later than October 31, 1989. Any party that has previously submitted an application for refund from crude oil overcharge funds need not file another application; that application will be deemed to be filed in this and all other crude oil proceeding finalized to date.

(3) The director of Special Accounts and Payroll, Office of Departmental Accounting and Financial Systems Development, Office of the Controller, Department of Energy, shall take all steps necessary to transfer, pursuant to Paragraphs (4), (5) and (6) below, all of the funds from the following subaccounts:

Lone Star Oil and Chemical Co.,
Account No. 6A0X00308
Holly Corporation, Account No.
6C0C00249W

(4) The Director of Special Accounts and Payroll shall transfer \$820,744.26 of the funds obtained pursuant to paragraph (3) above, plus interest which accrues on the amount from January 1, 1989 to the date of the transfer, into the subaccount denominated "Crude Tracking-States," Number 999DOE003W.

(5) The Director of Special Accounts and Payroll shall transfer the same amount of funds as that indicated in paragraph (4) above into the subaccount denominated "Crude Tracking-Federal," Number 999DOE002W.

(6) The Director of Special Accounts and Payroll shall transfer \$410,372.13 of the funds obtained pursuant to paragraph (3) above, plus interest which accrues on the amount from January 1, 1989 to the date of transfer, into the subaccount denominated "Crude Tracking-Claimants 2," Number 999DOE008Z.

Date: January 31, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

[FR Doc. 89-2717 Filed 2-2-89; 8:45 am]

BILLING CODE 6450-01-M

Proposed Refund Procedures

AGENCY: Office of Hearings and Appeals, Department of Energy.

ACTION: Notice of Special Refund Procedures.

SUMMARY: The Office of Hearings and Appeals (OHA) of the Department of Energy (DOE) announces the proposed procedures for disbursement of \$198.7 million, plus accrued interest, in crude oil overcharge funds obtained from Getty Oil Company. The OHA proposes to distribute the funds in accordance with the January 18, 1989 Order of the United States District Court for the District of Delaware, as well as the DOE's Modified Statement of Restitutionary Policy Concerning Crude Oil Overcharges, 51 FR 27899 (August 4, 1986).

DATE AND ADDRESS: Comments must be filed in duplicate within 30 days from

the date of publication of this notice in the *Federal Register* and should be addressed to: Office of Hearings and Appeals, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. The filing deadline for comments will be strictly observed. All comments should display a conspicuous reference to Case Number KEF-0124.

FOR FURTHER INFORMATION CONTACT:

Thomas O. Mann, Deputy Director,
Roger Klurfeld, Assistant Director,
Office of Hearings and Appeals, 1000
Independence Avenue, SW.,
Washington, DC 20585, (202) 586-2094
(Mann); 586-2383 (Klurfeld).

SUPPLEMENTARY INFORMATION: In accordance with 10 CFR 205.282(b), notice is hereby given of the issuance of the Proposed Decision and Order set out below. The Proposed Decision sets forth the procedures that the DOE has tentatively formulated to distribute crude oil overcharge funds obtained from Getty Oil Company. The funds are being held in interest-bearing escrow accounts pending distribution by the DOE.

The DOE proposes to distribute these funds in accordance with the January 18, 1989 Order of the United States District Court for the District of Delaware and the DOE's Modified Statement of Restitutionary Policy Concerning Crude Oil Overcharges, 51 Fed. Reg. 27899 (August 4, 1986) (the MSRP). Under the MSRP, crude oil overcharge funds are divided among the states, the federal government, and injured purchasers of refined products. Under the plan we are proposing, refunds to the states would be distributed in proportion to each state's consumption of petroleum products during the period of price controls. Refunds to eligible purchasers would be based on the number of gallons of petroleum products which they purchased and the extent to which they can demonstrate injury.

Applications for refund should not be filed at this time. Appropriate public notice will be given when the submission of claims is authorized.

Any member of the public may submit written comments regarding the proposed refund procedures.

Commenting parties are requested to submit two copies of their comments. Comments must be submitted within 30 days of publication of this notice in the *Federal Register* and should be sent to the address set forth at the beginning of this notice. All comments received will be available for public inspection between the hours of 1 p.m. and 5 p.m., Monday through Friday, except Federal holidays, in the Public Reference Room

of the Office of Hearings and Appeals, located in room 1E-234, 1000 Independence Avenue, SW., Washington, DC 20585.

Date: February 2, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

Proposed Decision and Order

Implementation of Special Refund Procedures

February 2, 1989.

Name of Firm: Getty Oil Company.

Date of Filing: January 31, 1989.

Case Number: KEF-0124.

Under the procedural regulations of the Department of Energy (DOE), 10 CFR Part 205, Subpart V, the Economic Regulatory Administration (ERA) may request that the Office of Hearings and Appeals (OHA) formulate and implement refund procedures to distribute funds received as a result of enforcement proceedings. These procedures are used to refund monies to those injured by actual or alleged violations of the DOE price regulations.

The ERA has filed a Petition for the Implementation of Special Refund Procedures for crude oil overcharge funds obtained from Getty Oil Company (Getty). Getty remitted these funds to the United States District Court for the District of Delaware as restitution for its violations of the crude oil producer price regulations formerly codified in 10 CFR Part 212. By Order of the district court dated January 18, 1989, \$198.7 million was transferred to the DOE for ultimate distribution to the states, the federal government and individual claimants. * This Proposed Decision and Order sets forth the OHA's plan to distribute these funds in accordance with the district court's Order. Comments are solicited.

The general guidelines which the OHA may use to formulate and implement a plan to distribute refunds are set forth in 10 C.F.R. Part 205, Subpart V. The Subpart V process may be used in situations where the DOE cannot readily identify the persons who may have been injured as a result of violations of the regulations or ascertain

* A total of \$128,393,131.68 was actually transferred to the DOE as of January 19, 1989. Title to United States Treasury Bills, with a value of \$70,295,000.00, was also transferred to the DOE, but the Treasury Bills are being held by the Bank of Delaware until their maturity date of February 9, 1989. At that time, these proceeds will be transferred to the DOE. The district court retained an additional \$890,000 in Getty overcharge funds pending resolution of the states' request for an exemption from an administrative assessment fee. We propose to apply the procedures in this Decision and Order to any of the retained funds that may be transferred to the DOE in the future.

the amount of the refund each person should receive. For a more detailed discussion of Subpart V and the authority of the OHA to fashion refunds, see *Office of Enforcement*, 9 DOE ¶ 82,508 (1981), and *Office of Enforcement*, 8 DOE ¶ 82,597 (1981). We have considered the ERA's request to implement Subpart V procedures with respect to the monies received from Getty, and have determined that such procedures are appropriate.

I. Background

On August 12, 1976, the Deputy Administrator for Compliance of the Federal Energy Administration issued a Remedial Order to Getty, finding the firm in violation of the crude oil producer price regulations. The DOE's Office of Administrative Review, the OHA's predecessor, affirmed the Remedial Order on appeal and ordered Getty to remit \$85 million plus interest as restitution for its violations. *Getty Oil Co.*, 1 DOE ¶ 80,102 (1977). After determining that "persons adversely affected by the Getty overcharges cannot be identified by reasonable measures," the DOE concluded that the Getty overcharges should be paid to the United States Treasury, because such a remedy would compensate "the ultimate victims of Getty's unlawful conduct: the public at large." *Id.* at 80,537.

The United States District Court for the District of Delaware affirmed the DOE's order as to all substantive issues, including the payment of overcharges to the Treasury. *Getty Oil Co. v. DOE*, 569 F. Supp. 1204 (D. Del. 1983). In 1984, the Temporary Emergency Court of Appeals (TECA) affirmed that ruling regarding Getty's liability, but remanded the question of appropriate remedy to the District Court. 749 F.2d 734 (TECA 1984), *cert. denied*, 496 U.S. 1209 (1985). TECA directed the District Court to hold the overcharge funds in an interest-bearing account, and ordered the DOE to reconsider the proper remedial distribution of the funds, taking into account the rights of any party to the funds. 749 F.2d at 739.

Subsequently, on July 7, 1986, the United States District Court for the District of Kansas approved the Settlement Agreement for distribution of \$1.4 billion in crude oil overcharge funds resulting from the Stripper Well Litigation. *In Re: The Department of Energy Stripper Well Exemption Litigation*, 653 F. Supp. 108 (D. Kan. 1986). Pursuant to that Agreement, the DOE issued a Modified Statement of Restitutionary Policy Concerning Crude Oil Overcharges, 51 FR 27899 (August 4, 1986) ("the MSRP"). The MSRP provides that crude oil overcharge funds in the

DOE escrow at the time of the Agreement, as well as crude oil funds obtained by the DOE in other pending administrative and court proceedings, would be divided among the states, the federal government and injured purchasers of refined petroleum products. Under the MSRP, up to 20 percent of these crude oil overcharge funds are reserved initially to satisfy valid claims by injured purchasers of petroleum products. Eighty percent of the funds, and any monies remaining after all valid claims are paid, are disbursed equally to the states and federal government for indirect restitution. The Stripper Well Agreement expressly stated that the MSRP would be applied to any funds obtained in the Getty litigation "to the extent that the funds arising out of such matters are determined to be Alleged Crude Oil Violations funds." Stripper Well Agreement at ¶ III.B.6, 6 Fed. Energy Guidelines ¶ 90,509 at 90,662.

On July 17, 1986, the DOE completed its reconsideration on remand of the Getty proceeding, and recommended to the Delaware District Court that the Getty overcharge funds were crude oil violation amounts and should be disbursed on the same basis as set forth in the Stripper Well Agreement. *Getty Oil Co.*, 14 DOE ¶ 83,033 at 86,284 (1986). That is, 80 percent of the funds would be divided equally between the federal government and the states, and 20 percent would be reserved for restitution to individual claimants. Claims for direct restitution would be administered under Subpart V pursuant to the MSRP. *Id.* at 86,283-84.

On February 16, 1988, the states and DOE filed a Joint Stipulation on Disbursement with the Delaware District Court. That Stipulation recommended that the court adopt the remedy suggested by the DOE as the appropriate disposition of the Getty overcharge funds. In an Opinion dated December 28, 1988, the court adopted the remedy proposed in the DOE's 1986 recommendation and approved the Joint Stipulation, finding it "reasonable, equitable and fair." *Getty Oil Co. v. DOE*, No. 77-434, slip op. at 20. The actual Order transferring the Getty funds to the DOE for disbursement according to the Subpart V regulations was dated January 18, 1989. It directed the DOE to distribute 40 percent of the Getty overcharge funds to the states, and 40 percent to the DOE. The remaining 20 percent of the funds were to be set aside for distribution to claimants pursuant to the Settlement Agreement and the MSRP.

II. The Proposed Refund Procedures

In accordance with that January 18, 1989 Order, we now propose to apply the procedures set forth in the MSRP to the Getty crude oil overcharges. We propose to apply these procedures to the entire \$198.7 million transferred to the DOE, plus any interest which accrues on that amount. As directed by the court, we will reserve initially the full 20 percent of the Getty overcharge amounts, or \$39.74 million plus interest, for direct restitution to claimants. Any portion of this 20 percent reserve which is not ultimately distributed in this manner will be divided equally between the states and the federal government.

The process which the OHA will use to evaluate claims in this proceeding will be modeled after the process the OHA has used in Subpart V proceedings to evaluate claims based upon alleged overcharges involving refined products. *MAPCO, Inc.*, 15 DOE ¶ 85,097 (1986); *Mountain Fuel Supply Co.*, 14 DOE ¶ 85,475 (1986). As in non-crude oil cases, applicants will be required to document their purchase volumes and to prove that they were injured as a result of the violations.

Applicants who were end-users or ultimate consumers of petroleum products, whose businesses are unrelated to the petroleum industry, and who were not subject to the DOE price regulations, are presumed to have been injured by any crude oil overcharges. In order to receive a refund, end-users need not submit any further evidence of injury beyond volumes of product purchased during the period of price controls. See *A. Tarricone, Inc.*, 15 DOE ¶ 85,495 at 88,893-96 (1987). The end-user presumption of injury is rebuttable, however. *Berry Holding Co.*, 16 DOE ¶ 85,405 at 88,797 (1987). If an interest party submits evidence which is of sufficient weight to cause serious doubt on the end-user presumption, the applicant will be required to produce further evidence of injury. *New York Petroleum, Inc.*, 18 DOE ¶ 85,435 at 88,702-03 (1988).

Reseller and retailer claimants must submit detailed evidence of injury, and may not rely on the presumptions of injury utilized in refund cases involving refined petroleum products. They can, however, use econometric evidence of the type employed in the OHA Report of the United States District Court for the District of Kansas in the Stripper Well Litigation, 6 Fed. Energy Guidelines ¶ 90,507 (June 19, 1985). Applicants who executed and submitted a valid waiver pursuant to one of the escrows established in the Stripper Well

Settlement Agreement have waived their rights to apply for crude oil refunds under Subpart V. *Boise Cascade Corp.* 16 DOE ¶ 85,214 at 88,411 (1987).

Refunds to eligible claimants who purchased refined petroleum products will be calculated on the basis of a volumetric refund amount derived by dividing the crude oil violation amounts involved in this determination (\$198.7 million) by the total consumption of petroleum products in the United States during the period of price controls (2,020,997,335,000 gallons). *Mountain Fuel*, 14 DOE at 88,868 n.4. This yields a volumetric refund amount of \$0.0000983 per gallon. We propose to adopt a deadline of October 31, 1989 for refund applications submitted pursuant to this determination.

As we stated in previous Decisions, a crude oil refund applicant will be required to submit only one application for crude oil overcharge funds. See *Ernest A. Allerkamp*, 17 DOE ¶ 85,079 at 88,176 (1988). Any party that has previously submitted a refund application in crude oil refund proceedings need not file another application; that application will be deemed to be filed in this proceeding as well. The volumetric refund amount will be increased as additional crude oil violation amounts are received in the future. Applicants may be required to submit additional information to document their refund claims for these future amounts. Notice of any additional amounts available in the future will be published in the *Federal Register*.

B. Payments to the States and Federal Government. Pursuant to the Order of the Delaware District Court, we will direct that the remaining 80 percent of the Getty overcharge funds, or \$158.95 million plus interest, be disbursed in equal shares to the states and federal government for indirect restitution. Refunds to the states will be in proportion to the consumption of petroleum products in each state during the period of price controls. The share or ratio of the funds which each state will receive is contained in Exhibit H of the Settlement Agreement. These funds will be subject to the same limitations and reporting requirements as all other crude oil monies received by the states under the Settlement Agreement.

Before taking the actions we have proposed in this Decision, we intend to publicize our proposal and solicit comments regarding the claims procedure for the 20 percent fund reserved for direct restitution to individual claimants. Such comments should be filed with the OHA within 30 days of publication of this Proposed Decision and Order in the *Federal*

Register. The filing deadline for comments will be strictly observed.

It Is Therefore Ordered That:

The refund amount remitted by Getty Oil Company to the United States District Court for the District of Delaware, and transferred to the Department of Energy by Order of that court dated January 18, 1989, shall be distributed in accordance with the foregoing Decision.

[FR Doc. 89-2916 Filed 2-3-89; 8:45 am]

BILLING CODE 6450-01-M

ENVIRONMENTAL PROTECTION AGENCY

[FRL-3514-6]

Agency Information Collection Activities Under OMB Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), this notice announces an extension of the deadline for public comment on the Information Collection Requests (ICRs) abstracted below that were submitted to the Office of Management and Budget (OMB) for review and comment. Public comments regarding the burden estimate, or any other aspect of these collections of information, including suggestions for reducing the burden, must be received by March 3, 1989.

SUPPLEMENTARY INFORMATION:

Office of Solid Waste and Emergency Response

Title: Accidental Release Information Program (EPA ICR #1331; OMB #2050-0065). This is a renewal of a currently approved collection.

Abstract: The Accidental Release Information Program (ARIP) applies trigger criteria (death/injury, large releases, and frequent releases of chemicals above the RQ) to select certain hazardous substance releases reported to the National Response Center. Facilities responsible for the selected releases are required to complete and return a questionnaire which asks for more detailed information on the causes, consequences and prevention practices in place at the time of the release.

Burden Statement: The estimated public reporting burden for this collection of information is 27 hours per respondent. This estimate includes time to read the instructions, gather existing

information, and prepare and submit the final questionnaire.

Respondents: Owners/operators of facilities with accidental releases.

Estimated No. of Respondents: 1425.

Estimated Total Annual Burden on Respondents: 38,475 hours.

Frequency of Collection: On occasion.

Title: Notification of Hazardous Waste Activity (EPA ICR #0261; OMB #2050-0028). This is a renewal of a currently approved collection.

Abstract: The notification form contains owner and operator information for facilities that handle hazardous wastes. An owner or operator must submit this form to EPA prior to handling hazardous wastes or prior to handling new hazardous waste streams. EPA uses this information to maintain an inventory of all hazardous waste activities throughout the nation.

Burden Statement: The estimated average public reporting burden for this collection of information is 3 hours per respondent per year. This estimate includes all aspects of the information collection including time for reviewing instructions, gathering the data needed, and submitting the notification form.

Respondents: Owners and operators of facilities that handle hazardous wastes.

Estimated No. of Respondents: 850.

Estimated Total Annual Burden on Respondents: 2550.

Frequency of Collection: One time.

Title: RCRA Hazardous Waste Permit Application, Part A (ICR #0262; OMB #2050-0034). This is a renewal of a currently approved collection.

Abstract: The RCRA permit application is used by owners and operators of hazardous waste treatment, storage, and disposal facilities in applying for permits as required by RCRA section 3005. The permit application is also used to define the processes and the wastes that can be managed at the facility in interim status. The application must be revised if certain changes are made to an interim status facility.

Burden Statement: The estimated average public reporting burden for this collection of information is 7.5 hours per respondent. This estimate includes all aspects of the information collection including time for reviewing instructions, gathering and maintaining the data needed, and submitting the forms.

Respondents: Owners and operators of facilities that handle hazardous waste.

Estimated No. of Respondents: 765.

Estimated Total Annual Burden on Respondents: 5745.

Frequency of Collection: On occasion.
Send comments to:

Carl Koch for ICR #1331 (Telephone 202-382-2739), Rick Westlund for ICR #'s 0261 and 0262 (Telephone 202-382-2745), U.S. Environmental Protection Agency, Information Policy Branch (PM-223), 401 M Street SW., Washington, DC 20460

and

Marcus Peacock, Office of Management and Budget, Office of Information and Regulatory Affairs, 726 Jackson Place NW., Washington, DC 20503 (Telephone (202) 395-3084).

Date: January 31, 1989.

Paul Lapsley,

Information and Regulatory Systems Division.

[FR Doc. 89-2658 Filed 2-3-89; 8:45 am]

BILLING CODE 6560-50-M

[OPP-180802; FRL-3514-8]

**Oregon Department of Agriculture
Receipt of Applications for Emergency
Exemptions to Use (+)-2-[4,5-
Dihydro-4-methyl-4-(1-methylethyl)-
5-oxo-1H-imidazol-2-yl]-5-ethyl-3-
pyridinecarboxylic Acid; Solicitation
of Public Comment**

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: EPA has received specific exemption requests from the Oregon Department of Agriculture (hereafter referred to as the "Applicant") to use the active ingredient (+)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid (Pursuit™) to control broadleaf weeds on 15,000 acres of dry peas, chickpeas, and lentils in Oregon. Pursuit™ contains an unregistered active ingredient and therefore, in accordance with 40 CFR 166.24, EPA is soliciting comment before making the decision whether or not to grant these exemptions.

DATE: Comments must be received on or before February 21, 1989.

ADDRESS: Three copies of written comments, bearing the identification notation "OPP-180802," should be submitted by mail to:

Public Docket and Information Section,
Field Operations Division (TS-757C),
Office of Pesticide Programs,
Environmental Protection Agency, 401
M Street SW., Washington, DC 20460
In person, bring comments to: Rm. 236,
Crystal Mall #2, 1921 Jefferson Davis
Highway, Arlington, VA.

Information submitted in any
comment concerning this notice may be

claimed confidential by marking any part or all of that information as "Confidential Business Information (CBI)." Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR Part 2. A copy of the comment that does contain CBI must be submitted for inclusion in the public record. Information not marked confidential may be disclosed publicly by EPA without prior notice of the submitter. All written comments will be available for inspection in Rm. 236 at the address given above from 8 a.m. to 4 p.m., Monday through Friday excluding legal holidays.

FOR FURTHER INFORMATION CONTACT:

By mail: Jim Tompkins, Registration Division (TS-767C), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460

Office location and telephone number:
Rm. 716, Crystal Mall 2, 1921 Jefferson
Davis Highway, Arlington, VA, (703-
557-1806).

SUPPLEMENTARY INFORMATION: Pursuant to section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136p), the Administrator may, at his discretion, exempt a State agency from any provisions of FIFRA if he determines that emergency conditions exist which require such exemption.

The Applicant has requested the Administrator to issue specific exemptions to permit the use of an unregistered herbicide, (+)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid (CAS 81335-77-5), manufactured as Pursuit™, by American Cyanamid Company, on dry peas, chickpeas, and lentils in Oregon. Information in accordance with 40 CFR Part 166 was submitted as part of these requests.

Prior to cancellation, dionseb was used to control annual broadleaf weeds in dry peas, lentils, and, chickpeas grown in Oregon according to the Applicant. Section 18's for use of dinoseb for weed control in dry peas, lentils, and chickpeas in the States of Idaho, Oregon and Washington were authorized for the 1988 use season. The Applicant states that other herbicide products that are labeled for use on dry peas, lentils, and chickpeas either do not control a broad spectrum of broadleaf weeds consistently or are not suitable for use in Oregon.

The Applicant indicates that yield losses due to uncontrolled weeds in peas, chickpeas, and lentils could range from 20 percent to 50 percent. Resulting in significant economic losses to growers in Oregon.

Pursuit™ will be applied as a preemergence tank mix with metribuzin

at a maximum rate of 0.0468 pounds active ingredient per acre. A single ground application per year will be made sometime between March 1, and June 15, 1989 to approximately 15,000 acres of dry peas, chickpeas, and lentils.

This notice does not constitute a decision by EPA on the applications. The regulations governing section 18 require publication of receipt of an application for a specific exemption proposing use of a new chemical (i.e., an active ingredient not contained in any currently registered pesticide). Such notice provides for the opportunity for public comment on the application.

Accordingly, interested persons may submit written views on this subject to the Field Operations Division at the address above.

The Agency, accordingly, will review and consider all comments received during the comment period in determining whether to issue the emergency exemptions requested by the Oregon Department of Agriculture.

Dated: January 19, 1989.

Anne E. Lindasy,

Director, Registration Division, Office of
Pesticide Programs.

[FR Doc. 89-2655 Filed 2-3-89; 8:45 am]

BILLING CODE 6560-50-M

[OPP-180801; FRL-3514-9]

**Wisconsin Department of Agriculture,
Trade, and Consumer Protection;
Receipt of Application for an
Emergency Exemption To Use
Mancozeb; Solicitation of Public
Comment**

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: EPA has received a specific exemption request from the Wisconsin Department of Agriculture, Trade and Consumer Protection (hereafter referred to as "Applicant") to use the fungicide mancozeb to treat 2,250 acres of cultivated American ginseng (*Panax quinquefolium* L.) to control foliar infection caused by *Phytophthora cactorum* and leaf and stem blight caused by *Alternaria panax*. EPA, in accordance with 40 CFR 166.24, is required to issue a notice of receipt and solicit public comment before making the decision whether to grant the exemption.

DATE: Comments should be received on or before February 21, 1989.

ADDRESS: Three copies of written comments, bearing the identification notation "OPP-180801," should be

submitted by mail to: Public Docket and Information Section, Field Operations Division (TS-757C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460.

In person, bring comments to: Rm. 236, Crystal Mall #2, 1921 Jefferson Davis Highway, Arlington, VA.

Information submitted in any comment concerning this notice may be claimed confidential by marking any part or all of that information as "Confidential Business Information." Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR Part 2. A copy of the comment that does not contain Confidential Business Information must be provided by the submitter for inclusion in the public record. Information not marked confidential may be disclosed publicly by EPA without prior notice. All written comments filed pursuant to this notice will be available for public inspection in Rm. 236, Crystal Mall No. 2, 1921 Jefferson Davis Highway, Arlington, VA, from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays.

FOR FURTHER INFORMATION CONTACT: By mail: Jim Topkins, Registration Division (TS-767C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460.

Office location and telephone number: Rm. 716, Crystal Mall 2, 1921 Jefferson Davis Highway, Arlington, VA, (703-557-1806).

SUPPLEMENTARY INFORMATION: Pursuant to section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136p), the Administrator may, at his discretion, exempt a State agency from any provision of FIFRA if he determines that emergency conditions exist which require such exemption.

The Applicant has requested the Administrator to issue a specific exemption to permit use of the fungicide mancozeb (CAS 8018-01-7) available as Dithane M-45, EPA Reg. No. 707-78. Information in accordance with 40 CFR Part 166 was submitted as part of this request. The Applicant was granted emergency exemptions for use of Dithane M-22 (maneb) on ginseng to control *Alternaria* in 1984 and 1985, but not in 1986. An emergency exemption for use of iprodione on ginseng to control *Alternaria* was granted in 1986. The Applicant indicates that a population of *Alternaria*, located in the ginseng growing area of Wisconsin, developed resistance to iprodione. In addition, an epidemic of *Phytophthora* foliar infection occurred in 1986, despite the

use of iprodione. The Applicant was granted emergency exemptions for use of Dithane M-45 (mancozeb) on ginseng to control *Phytophthora* and iprodione resistant *Alternaria* in 1987 and 1988. According to the Applicant, without effective control, ginseng growers could experience a 25 to 50 percent crop loss due to *Phytophthora* leaf blight and root rot and a 50 to 100 percent crop loss if *Alternaria* can not be effectively managed.

Dithane M-45 will be applied at weekly intervals by ground application equipment at a rate of 1.6 pounds active ingredient (2 pounds product) per acre during the growing season (late May through September). Dithane M-45 will be applied only during the first three growing seasons. No applications are to be made within one-year of harvest.

A Decision Document (EBDC Pesticides; Initiation of Special Review) for the ethylene bisdithiocarbamate fungicides (EBDC's), which includes mancozeb, was issued July 17, 1987 (52 FR 27172). The Agency initiated this action based on an assessment of the risks from exposure to ethylenethiourea (ETU) present in, or formed as a result of metabolic conversion from pesticide products containing the active ingredient mancozeb. ETU, a potential human carcinogen, teratogen, and thyroid toxicant, is present as a contaminant, degradation product, and metabolite of all the EBDC pesticides. The Agency, therefore, believes that the level of potential risk from mancozeb products, coupled with the presence of and conversion to ETU in all other EBDC pesticide products, warrants an assessment of the risks and benefits of all EBDC pesticides as a group. The Registration Standard for mancozeb was issued April 1987. The Registration Standard outlines data to be required by the Agency.

This notice does not constitute a decision by EPA on this application. The regulations governing section 18 require publication of a notice in the *Federal Register* of receipt of an application for a specific exemption proposing use of a pesticide which contains an active ingredient which has been the subject of a Special Review and is intended for a use that could pose a risk similar to the risk posed by any use of a pesticide which is or has been the subject of a Special Review (40 CFR 166.24(a)(5)). The risks considered in that document which could be similar to the risks posed by this proposed use are oncogenicity; teratogenicity; and thyroid toxicity. Accordingly, interested persons may submit written views on this subject to the Field Operations Division at the address given above. The Agency

will review and consider all comments received during the comment period in determining whether to issue this emergency exemption request.

Dated: January 19, 1989.

Anne E. Lindsay,

Director, Registration Division, Office of Pesticide Programs.

[FR Doc. 89-2654 Filed 2-3-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL HOME LOAN BANK BOARD

[No. AC-758; FHLBB No. 5451]

First Federal Savings and Loan Association of Roanoke Rapids, Roanoke Rapids, NC; Final Action Approval of Conversion Application

Date: January 27, 1989.

Notice is hereby given that on January 25, 1989, the Office of the General Counsel of the Federal Home Loan Bank Board, acting pursuant to the authority delegated to the General Counsel or his designee, approved the application of First Federal Savings and Loan Association of Roanoke Rapids, Roanoke Rapids, North Carolina for permission to convert to the stock form of organization. Copies of the application are available for inspection at the Office of the Secretariat at the Federal Home Loan Bank Board, 1700 G Street NW., Washington, DC 20552, and at the Office of the Supervisory Agent at the Federal Home Loan Bank of Atlanta, 1475 Peachtree Street NE., Atlanta, Georgia 30309.

By the Federal Home Loan Bank Board.

John F. Ghizzoni,

Assistant Secretary.

[FR Doc. 89-2704 Filed 2-3-89; 8:45 am]

BILLING CODE 6720-01-M

FEDERAL MARITIME COMMISSION

Agreement(s) Filed

The Federal Maritime Commission hereby gives notice of the filing of the following agreement(s) pursuant to section 5 of the Shipping Act of 1984.

Interested parties may inspect and obtain a copy of each agreement at the Washington, DC Office of the Federal Maritime Commission, 1100 L Street, NW., Room 10325. Interested parties may submit comments on each agreement to the Secretary, Federal Maritime Commission, Washington, DC 20573, within 10 days after the date of the *Federal Register* in which this notice appears. The requirements for comments are found in section 572.603

of Title 46 of the Code of Federal Regulations. Interested persons should consult this section before communicating with the Commission regarding a pending agreement.

Agreement No.: 224-200216

Title: Port Authority of New York and New Jersey Terminal Agreement.

Parties: Port Authority of New York and New Jersey (Authority), Lykes Bros. Steamship Co. (Lykes).

Synopsis: The Agreement provides that the Authority will pay Lykes \$25.00 per import container and \$50.00 per export container unloaded from or loaded on Lykes' vessels at a marine terminal in the Port of New York/New Jersey (Port). The payment applies only to loaded containers for which Lykes is required to pay a railroad for transportation by rail to or from points more than 260 miles from a terminal within the Port and have a prior or subsequent move by water through a marine terminal in the Port.

Agreement No.: 224-004177-005

Title: Port of Seattle Terminal Agreement.

Parties: Port of Seattle (Port), Stevedoring Services of America d.b.a. International Terminal, Inc.

Synopsis: The Agreement provides for an increase of 16.78 acres to the basic lease agreement with a corresponding increase in rental and the addition to the rental schedule of an amortization for a new railyard facility to be constructed by the Port on the premises. It also exercises the first of three five-year renewal options of the basic lease agreement.

Agreement No.: 224-011025-001

Title: Port of Seattle Terminal Agreement.

Parties: Port of Seattle, Hanjin Shipping Company, Ltd. (Hanjin).

Synopsis: The agreement adds 2.26 acres of terminal yard area on a temporary basis and acknowledges that Hanjin's new total area will consist of 27.48 acres upon completion of a new Terminal 42 entry gate. It adjusts the basic rental provisions of the basic lease agreement and acknowledges Hanjin's name change from Hanjin Container Lines, Ltd. to Hanjin Shipping Company, Ltd.

By Order of the Federal Maritime Commission.

Dated: February 1, 1989.

Tony P. Kominoth,

Assistant Secretary.

[FR Doc. 89-2699 Filed 2-3-89; 8:45 am]

BILLING CODE 6730-01-M

FEDERAL RESERVE SYSTEM

[Docket No. R-0658]

Foreign Government Treatment of U.S. Companies Operating in Government Debt Markets Abroad

AGENCY: Board of Governors of the Federal Reserve System.

ACTION: Notice of study and request for comment.

SUMMARY: Under the Primary Dealers Act of 1988, which becomes effective on August 23, 1989, the Federal Reserve System may not designate or permit the continuation of the designation as a primary dealer of any person of a foreign country if that person's home country does not grant to U.S. companies the same competitive opportunities in the underwriting and distribution of government debt instruments issued by such country as such country accords to domestic companies of such country. In order to implement this Act, the Federal Reserve is reviewing the government debt markets of certain countries and requests public comment on the treatment of U.S. companies with respect to these markets, focusing in particular on the treatment of U.S. companies relative to domestic firms.

DATE: Comments must be received by May 1, 1989.

ADDRESS: All comments, which should refer to Docket No. R-0658, should be mailed to William W. Wiles, Secretary, Board of Governors of the Federal Reserve System, Washington, DC 20551, or delivered to Room B-2222, 20th & Constitution Avenue, NW., Washington, DC, between 8:45 a.m. and 5:15 p.m. weekdays. Comments may be inspected in Room B-1122 between 8:45 a.m. and 5:15 p.m. weekdays.

FOR FURTHER INFORMATION CONTACT:

Ricki Rhodarmar Tigert, Associate General Counsel (202/452-3428); Kathleen M. O'Day, Senior Counsel (202/452-3786), Legal Division; or John D. Rea, Economist, Division of Monetary Affairs, Board of Governors of the Federal Reserve System, Washington, DC 20551. For the hearing impaired only, Telecommunication Device for the Deaf (TDD), Earnestine Hill or Dorothea Thompson, (202/452-3544).

SUPPLEMENTARY INFORMATION:

As noted above, under the Primary Dealers Act ("Act"), the Federal Reserve System may not permit a person of a foreign country to act as a primary dealer in U.S. government securities if the person's home country does not accord U.S. companies the same competitive opportunities as the foreign country

accords domestic companies in underwriting and distributing government debt obligations of such countries. A "person of a foreign country" includes any foreign individual or company that directly or indirectly controls a primary dealer. The Act does not affect a primary dealer controlled by a foreign person if, by July 31, 1987, the primary dealer was designated as such and had been acquired by the foreign person or had informed the Federal Reserve Bank of New York of the intent of such foreign person to acquire the primary dealer. The Act also excludes from its coverage primary dealers controlled by persons from a country that had entered into a bilateral free trade agreement with the United States or was negotiating to enter into a trade agreement under the Trade Act of 1974, as of January 1, 1987.

The Federal Reserve System is undertaking a study of the government debt markets of four countries, the United Kingdom, Japan, the Federal Republic of Germany, and Switzerland, to determine whether U.S. companies are accorded national treatment in each of those countries in their access to government debt markets. Nationals of two of these countries, the United Kingdom and Japan, currently control primary dealers that are not grandfathered under the Act; nationals of the other two countries, the Federal Republic of Germany and Switzerland, have expressed active interest in becoming primary dealers.

The Federal Reserve System would welcome the views of U.S. firms or other persons on the specific respects in which U.S. companies are accorded, or not accorded, the same competitive opportunities in the underwriting and distribution of government debt instruments issued by the four countries as those countries accord to domestic companies. All such comments, which should be submitted by May 1, 1989, would be considered in the context of the study of these markets.

By order of the Board of Governors,
January 31, 1989.

William W. Wiles,

Secretary of the Board.

[FR Doc. 89-2620 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

Change in Bank Control; Acquisitions of Shares of Banks or Bank Holding Companies; Vivian S. Erikson, et al.

The notificants listed below have applied under the Change in Bank Control Act (12 U.S.C. 1817(j)) and section 225.41 of the Board's Regulation

Y (12 CFR 225.41) to acquire a bank or bank holding company. The factors that are considered in acting on the notices are set forth in paragraph 7 of the Act (12 U.S.C. 1817(j)(7)).

The notices are available for immediate inspection at the Federal Reserve Bank indicated. Once the notices have been accepted for processing, they will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank indicated for that notice or to the offices of the Board of Governors. Comments must be received not later than February 21, 1989.

A. Federal Reserve Bank of Kansas City (Thomas M. Hoenig, Senior Vice President) 925 Grand Avenue, Kansas City, Missouri 64198:

1. *Vivian S. Erikson*, Del Norte, Colorado; to acquire 80 percent of the voting shares of Rio Grande County Bank, Del Norte, Colorado.

2. *Gus Edwin Malzahn*, Perry, Oklahoma; to acquire an additional 5.8 percent of the voting shares of FNBT Banc Shares, Inc., Perry, Oklahoma, and thereby indirectly acquire First National Bank and Trust Company of Perry, Perry, Oklahoma.

Board of Governors of the Federal Reserve System, January 31, 1989.

Jennifer J. Johnson,
Associate Secretary of the Board.

[FR Doc. 89-2621 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

Gore Bronson Bancorp, Inc., et al.; Formations of; Acquisitions by; and Mergers of Bank Holding Companies

The companies listed in this notice have applied for the Board's approval under section 3 of the Bank Holding Company Act (12 U.S.C. 1842) and § 225.14 of the Board's Regulation Y (12 CFR 225.14) to become a bank holding company or to acquire a bank or bank holding company. The factors that are considered in acting on the applications are set forth in section 3(c) of the Act (12 U.S.C. 1842(c)).

Each application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank or to the offices of the Board of Governors. Any comment on an application that requests a hearing must include a statement of why a written presentation would not suffice in lieu of a hearing, identifying specifically

any questions of fact that are in dispute and summarizing the evidence that would be presented at a hearing.

Unless otherwise noted, comments regarding each of these applications must be received not later than February 24, 1989.

A. Federal Reserve Bank of Chicago (David S. Epstein, Vice President) 230 South LaSalle Street, Chicago, Illinois 60690:

1. *Gore Bronson Bancorp, Inc.*, Northbrook, Illinois; to acquire 100 percent of the voting shares of Bank of Park Forest, Park Forest, Illinois.

2. *Huron Community Financial Services, Inc.*, East Tawas, Michigan; to become a bank holding company by acquiring 100 percent of the voting shares of Huron Community Bank, East Tawas, Michigan.

B. Federal Reserve Bank of St. Louis (Randall C. Sumner, Vice President) 411 Locust Street, St. Louis, Missouri 63166:

1. *Magna Group, Inc.*, Belleville, Illinois; to acquire 10 percent of the voting shares of Sesser Bancorporation, Inc., Sesser, Illinois, and thereby indirectly acquire Bank of Sesser, Sesser, Illinois.

Board of Governors of the Federal Reserve System, January 31, 1989.

Jennifer J. Johnson,
Associate Secretary of the Board.

[FR Doc. 89-2622 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

Hansen Minnesota, Inc.; Acquisition of Company Engaged in Permissible Nonbanking Activities

The organization listed in this notice has applied under § 225.23(a)(2) or (f) of the Board's Regulation Y (12 CFR 225.23(a)(2) or (f)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843(c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to acquire or control voting securities or assets of a company engaged in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

The application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such

as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Comments regarding the application must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than February 24, 1989.

A. Federal Reserve Bank of Minneapolis (James M. Lyon, Vice President) 250 Marquette Avenue, Minneapolis, Minnesota 55480:

1. *Hansen Minnesota, Inc.*, Freeborn, Minnesota; to acquire Freeborn Agency, Inc., Freeborn, Minnesota, and thereby engage in general insurance agency activities in a place with a population of less than 5,000 persons pursuant to § 225.25(b)(8)(iii) of the Board's Regulation Y. These activities will be conducted in Freeborn, Minnesota.

Board of Governors of the Federal Reserve System, January 31, 1989.

Jennifer J. Johnson,
Associate Secretary of the Board.

[FR Doc. 89-2623 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

National Westminster Bank PLC, et al.; Applications to Engage de Novo in Permissible Nonbanking Activities

The companies listed in this notice have filed an application under § 225.23(a)(1) of the Board's Regulation Y (12 CFR 225.23(a)(1)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843(c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to commence or to engage *de novo*, either directly or through a subsidiary, in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

Each application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for

inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Unless otherwise noted, comments regarding the applications must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than February 23, 1989.

A. Federal Reserve Bank of New York (William L. Rutledge, Vice President) 33 Liberty Street, New York, New York 10045:

1. *National Westminster Bank PLC*, London, England; *NatWest Holdings, Inc.*, Wilmington, Delaware; and *National Westminster Bancorp, Inc.*, Wilmington, Delaware; to engage *de novo* through its subsidiary, *NatWest Equity Corporation*, New York, New York, in making, acquiring, or servicing loans or other extensions of credit for the subsidiary's account or for the account of others such as would be made by a commercial finance company pursuant to § 225.25(b)(1) of the Board's Regulation Y. Comments on this application must be received by February 21, 1989.

B. Federal Reserve Bank of Cleveland (John J. Wixted, Jr., Vice President) 1455 East Sixth Street, Cleveland, Ohio 44101:

1. *Society Corporation*, Cleveland, Ohio; to engage *de novo* through a proposed wholly-owned subsidiary, *Society Community Development Corporation*, in certain loan and investment activities pursuant to § 225.25(b)(1); and community development related activities pursuant to § 225.25(b)(6) of the Board's Regulation Y.

C. Federal Reserve Bank of Chicago (David S. Epstein, Vice President) 230 South LaSalle Street, Chicago, Illinois 60690:

1. *Hasten Bancorp*, Indianapolis, Indiana; to engage *de novo* through its subsidiary, *Hasten Financial Services*, Indianapolis, Indiana, in securities

brokerage activities pursuant to § 225.25(b)(15) of the Board's Regulation Y.

Board of Governors of the Federal Reserve System, January 31, 1989.

Jennifer J. Johnson,

Associate Secretary of the Board.

[FR Doc. 89-2624 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

**North Central Investment Co.;
Formation of, Acquisition by, or
Merger of Bank Holding Companies;
and Acquisition of Nonbanking
Company**

The company listed in this notice has applied under § 225.14 of the Board's Regulation Y (12 CFR 225.14) for the Board's approval under section 3 of the Bank Holding Company Act (12 U.S.C. 1842) to become a bank holding company or to acquire voting securities of a bank or bank holding company. The listed company has also applied under § 225.23(a)(2) of Regulation Y (12 CFR 225.23(a)(2)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843 (c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to acquire or control voting securities or assets of a company engaged in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies, or to engage in such an activity. Unless otherwise noted, these activities will be conducted throughout the United States.

The application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Comments regarding the application must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than February 23, 1989.

A. Federal Reserve Bank of Chicago (David S. Epstein, Vice President), 230 South LaSalle Street, Chicago, Illinois 60690:

1. *North Central Investment Co.*, Corwith, Iowa; to become a bank holding company by acquiring 83.2 percent of the voting shares of *Farmers State Bank*, Grafton, Iowa.

In connection with this application, Applicant also proposes to acquire *North Central Insurance Services*, Corwith, Iowa, and thereby engage in the sale of insurance primarily in crop hail and multi peril products in a town of approximately 270 people pursuant to § 225.25(b)(8)(iii) of the Board's Regulation Y. These activities will be conducted in the town of Grafton, Iowa, and the surrounding area.

Board of Governors of the Federal Reserve System, January 31, 1989.

Jennifer J. Johnson,

Associate Secretary of the Board.

[FR Doc. 89-2625 Filed 2-3-89; 8:45 am]

BILLING CODE 6210-01-M

**GENERAL SERVICES
ADMINISTRATION**

**Intent To Prepare a Draft
Environmental Impact Statement and
Notice of Project Scoping Public
Hearing**

Notice is hereby given that the General Services Administration (GSA) intends to prepare a Draft Environmental Impact Statement (DEIS) documenting the assessment of effects related to development of a new Federal Courthouse and new Federal/Municipal Office Building within the Foley Square area, which would replace presently leased governmental office space in Manhattan. The proposed projects would be contained on sites bounded by Worth and Pearl Streets between the New York County Courthouse and Chatham Towers, and the block bounded by Broadway, Elk Street, Duane Street and Reade Street. Also evaluated will be a "No-Action" alternative in which affected governmental operations would remain in leased office space.

In conjunction with this intention to prepare a DEIS, GSA will conduct a project scoping public hearing on February 22, 1989 at 6:00 p.m. at the U.S. Court of International Trade-Ceremonial Courtroom, 1 Federal Plaza, Manhattan.

The purpose of this hearing is to obtain public comments leading to the preparation of the aforementioned DEIS for the new Federal Courthouse, Federal/Municipal Office Building, and alternatives. Comments regarding the proposed project will be accepted at the hearing from community groups, organizations and individuals, and will be limited to 5 minutes per presenter. Written comments will also be accepted at the hearing. It is suggested that organizations designate a spokesperson to present the comments to expedite the hearing process: Mr. Peter A. Sneed, General Services Administration, Region 2, Public Buildings Service, Jacob K. Javits Federal Building, Rm 1605, New York, NY 10278, (212) 264-3581.

Mr. Peter Sneed,

Director Planning Staff GSA, Region 2, Public Building Service.

January 31, 1989.

[FR Doc. 89-2632 Filed 2-3-89; 8:45 am]

BILLING CODE 6820-23-M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Office of the Assistant Secretary for Health; the Health Omnibus Programs Extension Act of 1988, Public Law 100-607; Delegation of Authority

Notice is hereby given that I have delegated to the Assistant Secretary for Health, with authority to redelegate, all the authorities vested in the Secretary of Health and Human Services as follows:

1. Title XXIII of the Public Health Service Act, "Research With Respect to Acquired Immune Deficiency Syndrome," (42 U.S.C. 300cc *et seq.*), as amended hereafter. (Section 201 of Pub. L. 100-607.)

2. Title XXIV of the Public Health Service Act, "Health Services With Respect to Acquired Immune Deficiency Syndrome," (42 U.S.C. 300dd *et seq.*), as amended hereafter. (Section 211 of Pub. L. 100-607.)

3. Title XXV of the Public Health Service Act, "Prevention of Acquired Immune Deficiency Syndrome," 42 U.S.C. 300ee *et seq.*, as amended hereafter. (Section 221 of Pub. L. 100-607.)

4. Section 203(a) of Title II, "Programs With Respect to Acquired Immune Deficiency Syndrome," of Pub. L. 100-607 (42 U.S.C. 300cc note), as amended hereafter.

5. Subtitle E of Title II, "Programs With Respect to Acquired Immune Deficiency Syndrome," of Pub. L. 100-

607 (42 U.S.C. 300ee-1-4), as amended hereafter.

6. Section 631 of Title VI, "Health Professions Reauthorization Act of 1988," of Pub. L. 100-607 (42 U.S.C. 295g-8 note), as amended hereafter.

7. Subtitle D of Title VII, "Nursing Shortage Reduction and Education Extension Act of 1988," of Pub. L. 100-607, as amended hereafter.

This delegation excluded the authority to promulgate regulations, to submit reports to the Congress, to establish advisory committees or national commissions, and to appoint members to such committees or commissions.

This delegation became effective upon the date of signature.

Date: January 27, 1989.

Don M. Newman,

Acting Secretary.

[FR Doc. 89-2639 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-17-M

Food and Drug Administration

[Docket No. 89F-0011]

National Aeronautics and Space Administration; Filing of Food Additive Petition

AGENCY: Food and Drug Administration.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA) is announcing that the National Aeronautics and Space Administration has filed a petition proposing that the food additive regulations be amended to provide for the safe use of sources of radiation to process beef steaks for use in space flight programs.

FOR FURTHER INFORMATION CONTACT:

George H. Pauli, Center for Food Safety and Applied Nutrition (HFF-330), Food and Drug Administration, 200 C Street SW., Washington, DC 20204, 202-472-5740.

SUPPLEMENTARY INFORMATION: Under the Federal Food, Drug, and Cosmetic Act (sec. 409(b)(5), 72 Stat. 1786 (21 U.S.C. 348(b)(5))), notice is given that a petition (FAP 9M4125) has been filed by the National Aeronautics and Space Administration, Washington, DC 20546, proposing that the food additive regulations be amended in Part 179—Irradiation in the Production, Processing and Handling of Food (21 CFR Part 179) to provide for the safe use of sources of radiation to process beef steaks for use in space flight programs.

The potential environmental impact of this action is being reviewed. If the agency finds that an environmental impact statement is not required and

this petition results in a regulation, the notice of availability of the agency's finding of no significant impact and the evidence supporting that finding will be published with the regulation in the **Federal Register** in accordance with 21 CFR 25.40(c).

Dated: January 27, 1989.

Richard J. Ronk,

Acting Director, Center for Food Safety and Applied Nutrition.

[FR Doc. 89-2619 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-01-M

Health Resources and Services Administration

Availability of Funds for Community and Migrant Health Centers Activities Including Comprehensive Perinatal Care Program

AGENCY: Health Resources and Services Administration HHS.

ACTION: Notice.

SUMMARY: The Health Resources and Services Administration (HRSA) is announcing, for Fiscal Year (FY) 1989: (1) The availability of approximately \$414.8 million for community health center (CHC) activities and approximately \$45.6 million for migrant health center (MHC) activities funded under sections 330 and 329 of the Public Health Service Act (42 U.S.C. 254c and 254b, respectively); (2) the availability of approximately \$20.5 million under sections 329 and 330 for C/MHCs to undertake comprehensive perinatal care programs designed to reduce infant mortality; and (3) the criteria that will be used in evaluating applications for FY 1989 funding. Within the aforementioned section 330 funding, the following will occur: (1) Funds will be provided to maintain or expand the provision of essential services by existing grantees that are performing according to program requirements; (2) approximately \$20 million will be provided to enhance center efforts to retain and recruit essential health professionals, especially primary care physicians; (3) approximately \$3 million will be provided to award grants to provide technical and other non-financial assistance under section 330(f)(1) of the Act; and (4) limited funds will be provided to enhance/improve the range of services at existing access points and to support essential capital improvement programs. No new centers will be funded during this fiscal year.

DATE: Applications for funds to provide essential services by existing grantees are due in the appropriate Public Health Service Regional Office 120 days prior to

the expiration of the current grant award unless otherwise specified. Proposals for the comprehensive perinatal care program funds must be received no later than May 1, 1989. Proposals for grants to provide technical and other non-financial assistance under section 330(f)(1) must be received no later than June 1, 1989. All applications must be delivered to the contact designated in this announcement or be postmarked by the applicable deadline to be considered timely. Any application which does not meet the deadline date will be returned to the applicant.

FOR FURTHER INFORMATION CONTACT: Information on current services grant funding levels may be obtained from, and completed applications should be sent to, the appropriate Regional Grants Management Officer (see Appendix). For general information about the availability of funds, contact Richard C. Bohrer, (301) 443-2260. For information on funding for the comprehensive perinatal care program, contact Joan Holloway, (301) 443-8134.

SUPPLEMENTARY INFORMATION: The Community and Migrant Health Centers Amendments of 1988, Pub. L. 100-386, contains a provision that only the central office of the Health Resources and Services Administration may enter into, or issue approvals with respect to, grants and contracts awarded under sections 329 and 330 of the Public Health Service Act. The intent of this requirement is to ensure that national program goals and requirements are consistently and uniformly applied. Regional Offices are sending application kits to all grantees which incorporate new program requirements arising from recent changes in the program's authorizing legislation.

Criteria for Evaluating Competing and Noncompeting C/MHC Applications

When determining whether Federal support will be made available, the Department will review C/MHCs for compliance with standard criteria stipulated in the regulations (42 CFR Part 51c for CHC and Part 56 for MHC activities) and their use of previously awarded sections 330 and 329 funds. This year's reviews will emphasize need and community impact, health services, management and finance, and governance expectations as set out below:

(a) Need and Community Impact (42 CFR 51c.104(b), 51c.305(b) and 56.104(b))

C/MHCs must demonstrate the need for services in their communities based on geographic, demographic, and

economic factors, resources in the area, and health status. Within the defined community a C/MHC must target its resources on the neediest populations. Centers must describe the needs of their user population in terms of health, demographic, and economic status. With respect to the service area, existing centers must describe briefly the unique characteristics of their areas, focusing on location of major service providers, barriers to care, and significant changes in the area. With respect to the user population, centers must document poverty, demographics, major health problems defined in diagnostic terms, and special needs of major population groups for whom the centers are the primary care providers, including migrant and seasonal farmworkers, perinatal patients, the elderly, the homeless, HIV infected individuals, and substance abusers.

(b) Health Services (42 CFR 51c.102(c)(1)(i), 51c.303(a) and (p), 56.303(a) and (p), 56.603(a) and (n), and 56.102(g)(1)(i))

C/MHCs must ensure that basic primary care services, coordination of other levels of care, and support services appropriate to defined needs are available and accessible. They must have qualified providers with a clinical director responsible for providing clinical leadership and supervision of the health care staff and must have a clinical management system that assures quality and continuity of care. The center must demonstrate the integration of needs, the health care plan, staffing, budgeting and clinical management. Each C/MHC must have a Health Care Plan that describes the clinical program, based on the problems identified in the documentation of the needs of the user population, and includes measurable objectives appropriate to the five stages of life (perinatal, pediatric, adolescent, adult, and geriatric) incorporating health promotion/disease prevention activities. The Plan must describe clinical methods, strategies, and protocols to be used to meet the stated objectives and a program to measure the extent to which the objectives are accomplished. Further, the Plan must be consistent with the policies of the center's board of directors and with its available resources. Each C/MHC must have Principles of Practice designed to implement its board's policies and maximize acceptability and effective utilization of services.

(c) Management and Finance (42 CFR 51c.303(g), 51c.303 (r) and (s), and 56.305(a)(3))

C/MHCs must have appropriate leadership and management structures to enable them to operate efficiently and effectively. They must also have financial systems to maintain internal control, ensure stewardship of Federal funds, maximize non-Federal resources, and maintain solvency. With respect to the management structure, appropriateness of the organizational structure, staffing arrangements, a functional management process, and supporting data systems will be reviewed and considered. Annual audits, comparisons of revenues and expenditures and other administrative indices such as productivity will be reviewed in evaluating center performance.

(d) Governance (42 CFR 51c.304 and 56.304)

A C/MHC must be governed by a board which represents the community served, has a user majority, and functions fully and effectively in its fiduciary role. Appropriateness of the board's size, composition, committee structure, performance, and selection process will be reviewed and evaluated.

Any proposed increase in the required level of grant support (other than cost of living adjustments, inflation, and malpractice premium increases) must be accompanied by a justification describing the requirements for a particular activity which could be considered and funded separately. Priority for funding will be given to proposals to support physician retention and recruitment strategies, and limited funding will be available for other purposes such as capital expenditures, improvements in the delivery of essential services, and the expansion of service capacity. Eligibility and Criteria for Evaluating Applications to Provide Technical and Other Non-Financial Assistance under section 330(f)(1):

Eligibility to receive funds under this category is based on the provisions of section 330(f)(1) of the PHS Act, authorizing awards to entities which will provide a broad range of technical assistance to C/MHCs. A full explanation of the basis on which applications will be reviewed is included in the *Federal Register* Notice, Volume 50, July 8, 1985, page 27851, which will also be included in application kits. In addition, the performance of grant recipients in using previously awarded section 330(f)(1) funds will be considered in determining

whether Federal support will be made available to continuation applicants.

Criteria for Evaluating Applications for the Comprehensive Perinatal Care Program

The following will be considered when each proposal is reviewed and evaluated:

- Evidence that the center has demonstrated the ability to conduct directly or through contract or other specific arrangements an effective perinatal care program serving high-risk women, infants, and children in a manner that assures continuity of care.

- The extent to which the center is part of a system of care within its own community and/or region and has established linkages with referral sources and relevant organizations to supplement its own capacity. A center's ongoing objective should be to increase patient access to services that the State MCH program provides and to State Medicaid benefits, including those available under the Omnibus Budget Reconciliation Acts of 1986 and 1987.

- The extent to which the center has documented the continued requirement for perinatal services by residents of its community. This should include an assessment of the utilization of services for perinatal and infant care by center users during the previous calendar year. The center should demonstrate its knowledge of other resources available in its community, region, and State to serve at-risk, low income pregnant women and infants, and the extent to which these other providers are serving this population.

- The adequacy and feasibility of the health care plan and new or expanded efforts proposed to meet the needs of the population and to improve pregnancy outcomes by reducing the incidence of infant mortality and morbidity. Particular attention will be focused on the applicant's ability to improve access to perinatal care while integrating a case management approach into overall patient care.

- The appropriateness of the proposed budget for this initiative.

- The adequacy of the center's plan to evaluate the results of this activity in terms of improved health status and the measurable objectives identified in the health care plan.

Executive Order 12372

All grants to be awarded under this notice are subject to the provisions of Executive Order 12372, as implemented by 45 CFR Part 100, which allows States the option of setting up a system for reviewing applications from within their States for assistance under certain

Federal programs. The application packages to be made available by DHHS (standard DHHS Form No. 424 which has been approved under OMB Control No. 0348-0006) will contain a listing of States which have chosen to set up such a review system and will provide a point of contact in the States for that review. Applicants are to contact their State single point of contact and follow their instructions for the review of applications.

In the OMB Catalog of Federal Domestic Assistance, the Community Health Center program is listed as Number 13.224; the Migrant Health Center program is Number 13.246; and the Technical and Other Non-Financial Assistance to Community Health Centers is Number 13.129.

Dated: December 15, 1988.

John H. Kelso,

Acting Administrator.

Appendix—Regional Grants Management Officers

Mary O'Brien, DHHS-Region I, John F. Kennedy Federal Building, Boston, MA 02203, (617) 565-1482

Thomas Butler, DHHS-Region II, 26 Federal Plaza, New York, NY 10278, (212) 264-4496
Walter H. Ihle, Jr., DHHS-Region III, P.O. Box 13716, 3535 Market Street, Philadelphia, PA 10101, (215) 596-6653

Wayne Cutchens, DHHS-Region IV, 101 Marietta Tower, Room 1106, Atlanta, GA 30323, (404) 331-2597

Lawrence Poole, DHHS-Region V, 300 South Wacker Drive, Chicago, IL 60606, (312) 353-8700

Frank Cantu, DHHS-Region VI, 1200 Main Tower Building, Dallas, TX 75202, (214) 767-3885

Hollis Hensley, DHHS-Region VII, 601 East 12th Street, Room 501, Kansas City, MO 64106, (816) 426-5841

Jerry F. Wheeler, DHHS-Region VIII, 1961 Stout Street, Denver, CO 80294, (303) 884-4461

Alan Harris, DHHS-Region IX, 50 United Nations Plaza, San Francisco, CA 94102, (415) 556-2595

Neal Adams, DHHS-Region X, 2201 Sixth Avenue, Mail Stop RX 20, Seattle, WA 98121, (206) 442-7997

[FR Doc. 89-2667 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-15-M

National Institutes of Health

National Cancer Institute; Meeting (Division of Cancer Treatment Board of Scientific Counselors)

Pursuant to Pub. L. 92-463, notice is hereby given of the meeting of the Board of Scientific Counselors, DCT, National Cancer Institute, National Institutes of Health, February 13-14, 1989, Building 31C, Conference Room 10, 9000

Rockville Pike, Bethesda, Maryland 20892.

This meeting will be open to the public on February 13 from 8:30 a.m. to approximately 5 p.m., and again on February 14 from 8 a.m. until adjournment, to review program plans, contract recompetitions and budget for the DCT program. In addition, there will be scientific reviews by several programs in the Division. Attendance by the public will be limited to space available.

In accordance with the provisions set forth in sec. 552b(c)(6), Title 5, U.S.C. and sec. 10(d) of Pub. L. 92-463, the meeting will be closed to the public on February 13 from 5 p.m. to approximately 6 p.m., for the review, discussion and evaluation of individual programs and projects conducted by the National Institute of Health, including consideration of personnel qualifications and performance, the competence of individual investigators, and similar items, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Mrs. Winifred Lumsden, Committee Management Officer, National Cancer Institute, Building 31, Room 10A06, National Institutes of Health, Bethesda, Maryland 20892 (301-496-5708) will provide summaries of the meeting and rosters of committee members upon request.

Dr. Bruce A. Chabner, Director, Division of Cancer Treatment, National Cancer Institute, Building 31, Room 3A52, National Institutes of Health, Bethesda, Maryland 20892 (301-496-4291) will furnish substantive program information.

Dated January 25, 1989.

Betty J. Beveridge,

Committee Management Officer, NIH.

[FR Doc. 89-2669 Filed 2-3-89; 8:45 am]

BILLING CODE 4140-01-M

National Cancer Institute; Amended Notice of Meeting

An amendment is hereby given to the notice of the National Cancer Advisory Board meeting which was published in the Federal Register (54 FR 3857) on January 26, 1989.

An additional reason for closing the morning session of February 7 is that the presentation involves data that may include incomplete, preliminary and unpublished research findings which may involve commercially valuable information which is privileged and confidential.

Dated: February 2, 1989.

Betty J. Beveridge,

Committee Management Officer, NIH.

[FR Doc. 89-2914 Filed 2-6-89; 8:45 am]

BILLING CODE 4140-01

Public Health Service

Office of the Assistant Secretary for Health, National Center for Health Services Research and Health Care Technology Assessment; Reannouncement of Assessment: Carotid Endarterectomy for the Treatment of Carotid Occlusive Disease

The Public Health Service (PHS), through the Office of Health Technology Assessment (OHTA) has previously published a notice of this assessment in the *Federal Register* Vol. 51 No. 118:22355, June 19, 1986. Additional information is being sought regarding the safety, clinical effectiveness, appropriateness and use of carotid endarterectomy for the treatment of carotid occlusive disease. Carotid endarterectomy is an operation for the removal of an atherosclerotic plaque from a carotid artery. Specifically, this assessment seeks to determine the medical indications for this procedure and the appropriateness of its use on asymptomatic and symptomatic patients. Specific guidelines are sought for identifying patients who may benefit from this procedure. The assessment also seeks to determine whether or not there is conclusive evidence or lack thereof on the benefits of endarterectomy over medical therapy in the management of patients with carotid artery disease.

PHS assessments consists of a synthesis of information obtained from appropriate organizations in the private sector as well as from PHS agencies and others in the Federal Government. The PHS assessments are based on the most current knowledge concerning the safety and clinical effectiveness of a technology. Based on this assessment, a PHS recommendation will be formulated to assist the Health care financing Administration (HCFA) in establishing Medicare coverage policy. Any person or group wishing to provide OHTA with additional information relevant to this assessment should do so in writing no later than April 30, 1989.

The information being sought is a review and assessment of past, current, and planned research related to this technology, a bibliography of published controlled clinical trial and other well-designed clinical studies, and

information related to the clinical acceptability and effectiveness of this technology, and a characterization of the patient population most likely to benefit from it.

Proprietary information is not being sought.

Written material should be submitted to: Harry Handelsman, D.O., National Center for Health Services Research and Health Care Technology Assessment, 5600 Fishers Lane, Room 12A-27, Rockville, MD 20857, (301) 443-4990.

Date: January 26, 1989.

Donald E. Goldstone,

Acting Director, Office of Health Technology Assessment.

[FR Doc. 89-2703 Filed 2-3-89; 8:45 am]

BILLING CODE 4160-17-M

National Institutes of Health; Statement of Organization, Functions and Delegations of Authority

Part H. Chapter HN, (National Institutes of Health) of the Statement of Organization, Functions and Delegations of Authority for the Department of Health and Human Services (40 FR 22859, May 27, 1975, as amended most recently at 53 FR 44126, November 1, 1988) is amended to reflect the following change in the National Library of Medicine, NIH: (1) Establish the National Center for Biotechnology Information (HNL7). The Center will serve as a national focal point for the study of biotechnology information science, provide access nationwide to all relevant molecular biology electronic databases, and develop specifications for future biotechnology databases.

Section HN-B, Organization and Functions, is amended as follows:

(1) After the statement for the Division of Specialized Information Services (HNL6), insert the following: National Center for Biotechnology Information (HNL7). (1) Conducts and sponsors research and development of systems that enhance electronic access by biomedical scientists to university, commercial, and government factual data bases and knowledge bases in biotechnology; (2) supports, assists, and enhances existing public information resources for biotechnology, such as nucleic acid and protein sequence databanks and other related research information resources; (3) conducts and sponsors collaborative research and development for molecular biology research information systems, including methods of data acquisition, representation, retrieval, and analysis; (4) provides technical consultation and assistance to other government and

private organizations that support biotechnology research and development to foster the links among computer-based biology information resources; (5) sponsors and conducts workshops, symposia, and other scientific meetings to foster the development of computer and information science as applied to basic biological research; and (6) develops and promotes standards for data bases, communications, and nomenclature for molecular biology data which facilitate the sharing of research data among laboratories on a national and international scale.

Date: January 27, 1989.

Wilford J. Forbush,

Director, Office of Management, PHS.

[FR Doc. 89-2702 Filed 2-3-89; 8:45 am]

BILLING CODE 4140-01-M

Social Security Administration

[Project Announcement No. SSA-OP-89-1]

Federal Old-Age, Survivors, and Disability Insurance

AGENCY: Social Security Administration, HHS.

ACTION: Announcement of the availability of funds for section 702 and section 1110 grants.

SUMMARY: The Commissioner of Social Security announces that competing applications will be accepted for new research grants authorized under sections 702 and 1110 of the Social Security Act. This announcement, consisting of three parts, describes the nature of the grant activities and gives notice of the anticipated availability of fiscal year (FY) 1989 funds in support of the proposed activities. Part I discusses the purpose of the announcement and briefly describes the application process. Part II describes the programmatic priorities under which the Social Security Administration (SSA) is soliciting applications for funding. Part III describes the application process and provides guidance on how to submit an application.

DATE: The closing date for the receipt of grant applications in response to this announcement is May 8, 1989.

Part I. Purpose and the Grants Process A. Program Purpose

This research is intended to add to existing knowledge and to improve methods and techniques for the management, administration, and effectiveness of SSA programs.

In general, SSA will fund the following types of projects:

1. Those that examine "actuarial fairness" and retirement incentives of the delayed retirement credit.
2. Those that examine demand for older workers.

B. Fiscal Year 1989 Grant Process

The grant application process for FY 1989 will consist of a one-stage, full application. Applications are limited to 20 single-spaced pages (excluding resumes, forms, etc.) and must relate to the selection criteria established for review of applications.

Priority areas in this announcement permit applicants to propose research efforts not to exceed 12 months in duration. In item 11 of the Face Sheet (page 1 of form SSA 96) indicate the priority area under which the application is submitted. Applicants should be aware that grant awards are subject to the availability of funds.

Part II. Priority Research Areas

In particular, the following projects will be considered for funding:

A. "Actuarial Fairness" and Retirement Incentives of the Delayed Retirement Credit (DRC)—SSA-OP-89-001

The DRC currently increases the benefit received by a retired worker by 3 percent for each year that the worker delays receipt of benefits after attaining age 65 up to age 70. Under the 1983 Social Security amendments, for individuals attaining age 65 after 1989, the DRC is gradually increased until it reaches 8 percent in 2008 and later years. The objective is that ultimately the benefits paid to workers who retire after the "normal" retirement age will be "actuarially fair" on average—in the sense that the present value of benefits paid to workers who retire after normal retirement age will be the same as for workers who retire at the normal retirement age. A number of proposals to liberalize or eliminate the retirement earnings test (RET) also provide for accelerating the increase in the DRC to 8 percent.

The principal objective of this grant is to examine how the DRC interacts with the retirement earnings test and other program provisions to influence worker incentives to delay or encourage retirement, both at the current 3 percent DRC and the scheduled 8 percent DRC. How do the payment of payroll taxes, benefit recomputations, and income taxation of benefits associated with DRC affect such incentives? The purpose is to provide quantitative insight into the effect of Social Security benefit and tax provisions on the work and retirement

incentives of older workers but not to ask for econometric estimates of worker's labor supply responses. We are interested in both average effects on workers, and in the differential effects of such provisions on population subgroups that differ with respect to such factors as mortality and earnings experience. Population subgroups of interest would be classified by such characteristics as: sex, race, marital status, age of benefit acceptance of worker and spouse (if married), and earnings level of worker.

A secondary, related objective is to examine how the "actuarial fairness" of the DRC benefit adjustment affects the distribution of lifetime net benefits over the remaining lifetime of the beneficiaries. Who are the relative gainers and losers? We are again interested in different population subgroups, as described above.

In examining the effect of Social Security benefit provisions on the work-retirement decision and on the distribution of well-being over the retirement lifetime, proposals should consider the appropriate definition of "actuarial fairness" in the context of these questions. In addition to the relationship between the present value of expected benefits and the age of benefit acceptance, alternative definitions might incorporate the additional Social Security payroll taxes paid, the recomputation of benefits, and the income taxation of benefits associated with partial or delayed retirement. The proposed research is limited to the identification and measurement of the incentives associated with different ages of benefit acceptance for different population subgroups. The objective is to provide quantitative insight into the effect of Social Security benefit and tax provisions on the work and retirement incentives of older workers. This grant announcement does not ask for econometric estimates of workers' labor supply responses.

Grant proposals must be based on well-developed, rigorous analysis. It is anticipated that a total of up to \$100,000 will be allocated to fund up to one or more projects for a period not to exceed 12 months in duration.

B. Demand for Older Workers—SSA-OP-89-002

The Social Security Amendments of 1983 will gradually raise the retirement age and increase the delayed retirement credit (DRC). Proposals are being made to liberalize or eliminate the earnings test. These changes in the Social Security program may induce behavioral responses, particularly in work and

retirement patterns. How changes in work incentive provisions affect the behavior of older workers will depend on whether older workers will be able to find employment. Almost all retirement studies have been based on a model of worker choice that assumes that older workers who retire are able to find jobs at the prevailing wage. Because this assumption may not be valid, there is a need to examine the demand for older workers.

Among the questions to be addressed are: What determines the demand for older workers? Will changes in the age structure of the labor force and changes in the Social Security law encourage firms to continue to employ older workers or hire new older workers, either on a full-time or part-time basis?

What will be the effect on job search attitudes and employment of older workers who become unemployed before reaching the eligible age for Social Security and/or private pension benefits? Will older workers be reemployed in occupations requiring training for new technologies? What will be the effect of the later retirement age on the employment status of older workers who are in physically demanding occupations or whose health has diminished? Will such older workers be employed in less strenuous jobs at the end of their work career? What is, and will be, the role of private pension provisions on the employment of older workers?

Grant proposals should examine the demand for older workers within the framework of rigorous and well-developed models of labor-market behavior. Particular consideration should be given to explaining the demand for older workers in the context of projected changing demographic patterns.

It is anticipated that a total of \$75,000 will be allocated to fund one or more projects not to exceed 12 months in duration.

Note.—To foster the sharing of research, principal investigators for each priority area will be required to discuss the results of their research with SSA staff. Funds should be included in the budget for a meeting at the SSA Office of Research and Statistics, Washington, DC 20008.

Part III. Application Process

A. Eligible Applicants

Any State, local government and public or private organization or agency (including educational institutions) may apply for a grant under this announcement. Individuals are not eligible to apply. For-profit organizations or institutions may apply

with the understanding that no grant funds may be paid as profit to any grant recipient. Profit is considered any amount in excess of the allowable costs of the grant. A for-profit organization or institution means a corporation or other legal entity which is organized or operated for the profit or benefit of its shareholders or other owners and must be distinguishable or legally separable from that of an individual acting on his or her own behalf.

B. Availability and Duration of Funding

The grant(s) for "Actuarial Fairness of Delayed Retirement Credit" (SSA-OP-89-001) will be funded under the authority of section 1110 of the Social Security Act. SSA anticipates allocating \$100,000 to fund at least one (1) project in priority area SSA-OP-89-001. The grant(s) for "Demand for Older Workers" (SSA-OP-89-002) will be funded under section 702 of the Social Security Act. SSA anticipates allocating \$75,000 to fund at least one (1) project in priority area SSA-OP-89-002. SSA will issue an initial grant award(s) not to exceed 12 months in duration in each priority area.

C. Grantee Share of the Project Costs

Grant recipients receiving assistance to conduct these research projects are expected to contribute towards the project costs. Generally, 5 percent of the total costs is considered acceptable. No grant will be awarded that covers 100 percent of the project's costs.

D. The Application Process for Proposals Requesting Grant Funds

Organizations wishing to compete for grants under this announcement must submit an application by May 8, 1989. Applications received in response to this announcement will be reviewed by Federal and non-Federal personnel. Successful applicants may expect funding during the third quarter of FY 1989.

1. Availability of Application Forms

Application kits which contain the prescribed application forms for grant funds are available from the Grants Management Staff; Division of Contract and Grant Operations; Office of Acquisition and Grants; Office of Management; 1-E-4 Gwynn Oak Building; 1710 Gwynn Oak Avenue; Baltimore, Maryland, 21207; telephone (301) 965-9502; Mr. Lawrence H. Pullen, Chief, Grants Management Staff.

When requesting an application kit, the applicant should refer to project announcement number SSA-OP-89-1 and the date of this announcement to

ensure receipt of the proper application kit.

2. Additional Information

For additional information concerning project development, please contact Mr. James P. Coughlin; Office of Research and Statistics; Office of Policy; Social Security Administration; 2218 Annex Building; 6401 Security Boulevard; Baltimore, Maryland, 21235; telephone (301) 965-2843.

3. Application Submission

All applications requesting Federal grant funds must be submitted on the standard forms provided by the Grants Management Staff. The application shall be executed by an individual authorized to act for the applicant organization and to assume for the applicant organization the obligations imposed by the terms and conditions of the grant award.

As part of the project title (page 1 of the application form SSA-96, item 11), the applicant must clearly indicate the application submitted is in response to this announcement (SSA-OP-89-1) and must show the appropriate project identifier (i.e., SSA-OP-89-001, etc.).

Applications must be submitted to: Grants Management Staff; Division of Contract and Grant Operations; Office of Acquisition and Grants; Office of Management; Social Security Administration; 1-E-4 Gwynn Oak Building; 1710 Gwynn Oak Avenue; Baltimore, Maryland, 21207.

4. Application Consideration

Applications are initially screened for relevance to this announcement. If judged irrelevant, the applications are returned to the applicants. Applications that conform to the requirements of this program announcement will be reviewed competitively against the evaluation criteria specified in No. 6(b) of this announcement and evaluated by Federal and non-Federal personnel. The results of this evaluation will assist the Commissioner of Social Security in considering competing applications.

5. Application Approval

Grant awards will be issued within the Federal funds available following the approval of the applications selected for funding. The official award document is the "Notice of Grant Award." It will provide the amount of funds awarded, the purpose of the award, the budget period for which support is given, the total project period for which support is contemplated, the amount of grantee financial participation, and any special terms and conditions of the grant award.

6. Criteria for Screening and Reviewing of Applications

(a) *Screening Requirements.* In order for an application to be in conformance, it must meet *all* of the following requirements:

(1) *Number of Copies:* An original signed application and two copies must be submitted. Five additional copies are optional and will expedite processing of the grant application.

(2) *Length:* The narrative portion of the application must not exceed 20 single-spaced pages, exclusive of resumes, forms, etc., typewritten on one side of the paper only. Applications should neither be unduly elaborative nor contain voluminous documentation.

(3) *Non-Federal Contribution (Match):* Grant recipients must contribute towards the project costs (cash or in-kind). Generally, 5 percent of the total costs is acceptable.

(b) *Evaluation Criteria.* Applications which pass the screening will be reviewed by at least three individuals. Reviewers will score the applications, basing their scoring decisions on the following criteria. Relative weights are shown in parentheses.

(1) *Project Objective:* (15 points)

How closely do the project objectives fit those of the announcement? Is the need for the project discussed in terms of the importance of the issues to be addressed? Does it describe how the project builds upon previous research?

(2) *Project Design:* (30 points).

Is the design of the project adequate and feasible as indicated by the appropriateness of the work statement and the technical approach, including:

(a) a concise and clear statement of goals and objectives; (b) theoretical analysis of the problem and, if appropriate, hypotheses to be tested and/or parameters to be estimated; (c) data to be collected, including specification of data sources; (d) plan for data analysis, including appropriateness of statistical methods to be used; and (e) scheduling of tasks and milestones in the progress of the project? Does the proposal describe specific plans for conducting the project in terms of the tasks to be performed, and how the approach proposed will accomplish the project objectives?

(3) *Qualifications:* (30 points)

Do the qualifications of the project personnel, as evidenced by training, experience, and publications, indicate that they have the skills required to competently carry out the research and to produce a final report that is comprehensible and usable? Is the staffing pattern appropriate for the

proposed research, linking responsibilities clearly to project tasks? Does the applicant's organization have adequate facilities and resources to plan, conduct, and complete the project?

(4) Organization and Budget: (10 points)

Are the resources needed to conduct the project specified, including personnel, time, funds, and facilities? Are any collaborative efforts with other organizations clearly identified and written assurances referenced? Is all budget information provided, including a description by category (personnel, travel, etc.) of the total of the Federal funds required? Are funds specified for each budget period? Where appropriate, are justifications and explanations of costs provided? Are the project's costs reasonable in view of the level of efforts and anticipated outcome?

(5) Expected Outcomes: (15 points)

What is the potential usefulness of the anticipated result and expected benefits to SSA and other target groups? What is the potential usefulness of the proposed project for the advancement of scientific knowledge?

7. Closing Date for Receipt of Applications

The closing date for receipt of grant applications for Federal funds in response to this announcement is May 8, 1989.

Applications may be mailed or sent by commercial carrier or personally delivered to: Grants Management Staff; Division of Contract and Grant Operations; Office of Acquisition and Grants; Office of Management; Social Security Administration; Room 1-E-4 Gwynn Oak Building; 1710 Gwynn Oak Avenue; Baltimore, Maryland, 21207.

Applications must be received by the Grants Management Staff on or before the above closing date to be considered. Personally delivered applications are accepted during normal working hours of 8:30 a.m. to 5 p.m. Monday through Friday on or prior to the established closing date. An application will be considered to be received on time if personally delivered to SSA or mailed through the U.S. Postal Service or sent by commercial carrier on or before the closing date (as evidenced by a legible U.S. Postal Service postmark or legibly dated receipt from a commercial carrier). Private metered postmarks will not be considered acceptable as proof of timely mailing.

Applications submitted by any means other than the U.S. Postal Service or commercial carrier shall be considered as acceptable only if physically received at the above address on or before the deadline date. Applications which are mailed through the U.S. Postal Service

or sent by commercial carrier on or before the closing date must be received by SSA prior to the meeting of the reviewers selected to evaluate the grant applications. Applications which are not received on time will not be considered for funding.

Paperwork Reduction Act

This notice contains reporting requirements in "The Application Process" section. However, the information is collected using form SSA-96, *Federal Assistance*, which has OMB clearance No. 0960-0184.

Executive Order 12372—Intergovernmental Review of Federal Programs

This program is not covered by the requirements of Executive Order 12372 relating to the Federal policy for consulting with State and local elected officials on proposed Federal financial assistance.

(Catalog of Federal Domestic Assistance Program No. 13.812—Assistance Payments—Research and Demonstrations)

Dated: January 26, 1989.

Dorcas R. Hardy,

Commissioner of Social Security.

[FR Doc. 89-2684 Filed 2-3-89; 8:45 am]

BILLING CODE 4190-11-M

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Office of Administration

[Docket No. N-89-1926]

Submission of Proposed Information Collection to OMB

AGENCY: Office of Administration, HUD.
ACTION: Notice.

SUMMARY: The proposed information collection requirement described below has been submitted to the Office of Management and Budget (OMB) for review, as required by the Paperwork Reduction Act. The Department is soliciting public comments on the subject proposal.

ADDRESS: Interested persons are invited to submit comments regarding this proposal. Comments should refer to the proposal by name and should be sent to: John Allison, OMB Desk Officer, Office of Management and Budget, New Executive Office Building, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: David S. Cristy, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street, Southwest, Washington, DC 20410,

telephone (202) 755-6050. This is not a toll-free number. Copies of the proposed forms and other available documents submitted to OMB may be obtained from Mr. Cristy.

SUPPLEMENTARY INFORMATION: The Department has submitted the proposal for the collection of information, as described below, to OMB for review, as required by the Paperwork Reduction Act (44 U.S.C. Chapter 35).

The Notice lists the following information: (1) The title of the information collection proposal; (2) the office of the agency to collect the information; (3) the description of the need for the information and its proposed use; (4) the agency form number, if applicable; (5) what members of the public will be affected by the proposal; (6) how frequently information submissions will be required; (7) an estimate of the total numbers of hours needed to prepare the information submission including number of respondents, frequency of response, and hours of response; (8) whether the proposal is new or an extension, reinstatement, or revision of an information collection requirement; and (9) the names and telephone numbers of an agency official familiar with the proposal and of the OMB Desk Officer for the Department.

Authority: Section 3507 of the Paperwork Reduction Act, 44 U.S.C. 3507; Section 7(d) of the Department of Housing and Urban Development Act, 42 U.S.C. 3535(d).

Dated: January 18, 1989.

John T. Murphy,

Director, Information Policy and Management Division.

Proposal: Second Phase of Collecting Data on Low-Income Housing Tax Credit.

Office: Policy Development and Research.

Description of the Need for the Information and Its Proposed Use: HUD will use this second phase data collection as a one-time effort to help explain to Congress and the public, the housing issues of the Low-Income Housing Tax Credit. HUD will acquire new, complimentary data from 15 State housing agencies, developers, and syndicators for 300 sample tax properties.

Form Number: None.

Respondents: State and local governments and businesses or other for-profit.

Frequency of Submission: One-time.
Reporting Burden:

	Number of respondents	x	Frequency of response	x	Hours per response	=	Burden hours
State officials.....	15		1		1		15
Developers.....	300		1		1		300
Syndicators.....	300		1		.5		150

Total Estimated Burden Hours: 465.

Status: Revision.

Contact: John Ross, HUD, (202) 744-5426; John Allison, OMB, (202) 395-6880.

Date: January 18, 1989.

Proposal: PHA Development Cost Budget/Cost Statement, Actual Development Cost Certificate, Acquisition and Relocation.

Office: Public and Indian Housing. Description of the Need for the Information and Its Proposed Use: This report will enable HUD to determine whether amounts requested or spent are reasonable to services or items purchased, or to actual or projected development progress so that if necessary, timely action can be taken. It will also enable HUD to determine

PHA's compliance with the U.S. Housing Act of 1937, as amended.

Form Number: HUD-52484, HUD-52477.

Respondents: States or local governments and non-profit institutions.

Frequency of Submission: Recordkeeping and on occasion. Reporting Burden:

	Number of respondents	x	Frequency of response	x	Hours per response	=	Burden hours
HUD-52484, development cost.....	207		2		2		828
HUD-52484, cost statement.....	207		4		2		1,656
HUD-52427, actual development cost certification.....	207		1		.25		52
Recordkeeping.....	301		1		1		301

Total Estimated Burden Hours: 2,837.

Status: Reinstatement.

Contact: Raymond W. Hamilton, HUD, (202) 426-0938, John Allison, OMB, (202) 395-6880.

Date: January 18, 1989.

[FR Doc. 89-2694 Filed 2-3-89; 8:45 am]

BILLING CODE 4210-01-M

[Docket No. N-89-1927]

Submission of Proposed Information Collection to OMB

AGENCY: Office of Administration, HUD.

ACTION: Notice.

SUMMARY: The proposed information collection requirement described below has been submitted to the Office of Management and Budget (OMB) for review, as required by the Paperwork Reduction Act. The Department is soliciting public comments on the subject proposal.

ADDRESS: Interested persons are invited to submit comments regarding this proposal. Comments should refer to the proposal by name and should be sent to:

John Allison, OMB Desk Officer, Office of Management and Budget, New Executive Office Building, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: David S. Cristy, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street, Southwest, Washington, DC 20410, telephone (202) 755-6050. This is not a toll-free number. Copies of the proposed forms and other available documents submitted to OMB may be obtained from Mr. Cristy.

SUPPLEMENTARY INFORMATION: The Department has submitted the proposal for the collection of information, as described below, to OMB for review, as required by the Paperwork Reduction Act (44 U.S.C. Chapter 35).

The Notice lists the following information: (1) The title of the information collection proposal; (2) the office of the agency to collect the information; (3) the description of the need for the information and its proposed use; (4) the agency form number, if applicable; (5) what members of the public will be affected by the

proposal; (6) how frequently information submissions will be required; (7) an estimate of the total numbers of hours needed to prepare the information submission including number of respondents, frequency of response, and hours of response; (8) whether the proposal is new or an extension, reinstatement, or revision of an information collection requirement; and (9) the names and telephone numbers of an agency official familiar with the proposal and of the OMB Desk Officer of the Department.

Authority: Section 3507 of the Paperwork Reduction Act, 44 U.S.C. 3507; Section 7(d) of the Department of Housing and Urban Development Act, 42 U.S.C. 3535(d).

Date: January 10, 1989.

John T. Murphy,

Director, Information Policy and Management Division.

Proposal: Operating Budget and Supporting Schedules.

Office: Public and Indian Housing. Description of the Need for the Information and Its Proposed Use: This schedule will ensure that Public Housing Authorities (PHAs) follow sound

financial practices and that Federal funds are used for eligible expenditures. PHAs will use the form as a financial summary and analysis of immediate and long-term operating programs and plans

to provide control over operations and achieve objectives.

Form Number: HUD-52564, HUD-52566, HUD-52567, HUD-52571, and HUD-52573.

Respondents: State or Local Governments and Non-Profit Institutions.

Frequency of Submission: Annually.
Reporting Burden:

	Number of respond- ents	×	Frequency of response	×	Hours per response	=	Burden hours
HUD-52564.....	3,780		1		116.5		440,370
HUD-52566.....	3,780		1		1.0		3,780
HUD-52567.....	3,780		1		.75		2,835
HUD-52571.....	3,780		1		1		3,780

Total Estimated Burden Hours:
453,600.

Status: Extension.

Contact: John T. Comerford, HUD, (202) 416-1872, John Allison, OMB, (202) 395-6880.

Dated: January 10, 1989.

Proposal: Contractor's Report of Sales.

Office: Public and Indian Housing.

Description of the Need for the Information and Its Proposed Use: HUD will use this report to monitor the volume of sales for each Consolidated Supply Program product. HUD will also validate that a specific product on

which suppliers are bidding conforms to specified standards or specifications.

Form Number: HUD-52810.

Respondents: State or Local Governments.

Frequency of Submission: Recordkeeping and Semi-Annually.
Reporting Burden:

	Number of respond- ents	×	Frequency of response	×	Hours per response	=	Burden hours
Contractor's report of sales.....	400		2		2		1,600
Recordkeeping.....	400		1		2		800

Total Estimated Burden Hours: 2,400.

Status: Reinstatement.

Contact: Michael Diggs, HUD, (202) 426-4703, John Allison, OMB, (202) 395-6880.

Dated: January 10, 1989.

[FR Doc. 89-2695 Filed 2-3-89; 8:45 am]

BILLING CODE 4210-01-M

[Docket No. N-89-1928]

Submission of Proposed Information Collection to OMB

AGENCY: Office of Administration, HUD.
ACTION: Notice.

SUMMARY: The proposed information collection requirement described below has been submitted to the Office of Management and Budget (OMB) for review, as required by the Paperwork Reduction Act. The Department is soliciting public comments on the subject proposal.

ADDRESS: Interested persons are invited to submit comments regarding this proposal. Comments should refer to the proposal by name and should be sent to: John Allison, OMB Desk Officer, Office of Management and Budget, New Executive Office Building, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT:

David S. Cristy, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street, Southwest, Washington, DC 20410, telephone (202) 755-6050. This is not a toll-free number. Copies of the proposed forms and other available documents submitted to OMB may be obtained from Mr. Cristy.

SUPPLEMENTARY INFORMATION: The Department has submitted the proposal for the collection of information, as described below, to OMB for review, as required by the Paperwork Reduction Act (44 U.S.C. Chapter 35).

The Notice lists the following information: (1) The title of the information collection proposal; (2) the office of the agency to collect the information; (3) the description of the need for the information and its proposed use; (4) the agency form number, if applicable; (5) what members of the public will be affected by the proposal; (6) how frequently information submissions will be required; (7) an estimate of the total numbers of hours needed to prepare the information submission including number of respondents, frequency of response, and hours of response; (8) whether the proposal is new or an extension.

reinstatement, or revision of an information collection requirement; and (9) the names and telephone numbers of an agency official familiar with the proposal and of the OMB Desk Officer for the Department.

Authority: Section 3507 of the Paperwork Reduction Act, 44 U.S.C. 3507; Section 7(d) of the Department of Housing and Urban Development Act, 42 U.S.C. 3535(d).

Dated: January 17, 1989.

John T. Murphy,

Director, Information Policy and Management Division.

Proposal: Survey of Pensions Funds.

Office: Housing.

Description of the Need for the Information and Its Proposed Use: This survey provides the only source of information on the extent of institutional investment in mortgage-related securities and consequently their provision of funds to the mortgage market. It monitors how institutions respond to changes in Federal regulations. Respondents are pension funds or their investment managers, and commercial and mutual savings banks.

Form Number: None.

Respondents: Businesses or Other For-Profit.

Frequency of Submission: Quarterly.
Reporting Burden:

	Number of respond- ents	X	Frequency of response	X	Hours per response	=	Burden hours
Survey	586		4		.167		391

Total Estimated Burden Hours: 391.
Status: Revision.
Contract: John N. Dickie, HUD, (202) 755-7270. John Allison, OMB, (202) 395-6880.
Dated: January 17, 1989.
Proposal: Monthly Survey of Private Mortgage Insurance Activity.

Office: Housing.
Description of the Need for the Information and Its Proposed Use: This survey will enable public officials to make sounder policy decisions concerning public/private initiatives and participation in the mortgage market as well as to track growth and

identify potential problems confronting the private insurance.
Form Number: None.
Respondents: Businesses or Other For-Profit.
Frequency of Submission: Monthly.
Reporting Burden:

	Number of respond- ents	X	Frequency of response	X	Hours per response	=	Burden hours
Respondent Reporting Burden	13		12		.08		13

Total Estimated Burden Hours: 13.
Status: Existing.
Contact: John N. Dickie, HUD, (202) 755-7270. John Allison, OMB, (202) 395-6880.
Dated: January 17, 1989.
[FR Doc. 89-2696 Filed 2-3-89; 8:45 am]
BILLING CODE 4210-01-M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[NM-040-09-4120-10]

Oklahoma Resource Management Plan (OK RMP)

AGENCY: Bureau of Land Management, Interior.

ACTION: Call for coal and other resource information.

SUMMARY: The Bureau of Land Management (BLM), Tulsa District, Oklahoma Resource Area, is scheduled to prepare a Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for BLM managed Federal lands and minerals within Oklahoma. The major land use decision within the RMP/EIS concerning the Federal coal resource shall be the identification of areas acceptable for further consideration for leasing.

The purpose of this notice is to solicit coal and other resource information and indications of interest and needs pursuant to 43 Code of Federal Regulations (CFR) 3420.1-2, for inclusion in the RMP. Coal companies, state and local governments, and the general public are encouraged to submit information to the BLM to assist in the

determination of coal development potential and possible conflicts with other resources. Where such information is determined to indicate development potential for an area, the area may be included in the land use plan for further consideration for leasing.

DATE: Comments relating to this call for information will be accepted until June 1, 1989.

ADDRESS: Comments should be sent to: Paul W. Tanner, Area Manager, Bureau of Land Management, Oklahoma Resource Area, 200 NW Fifth Street, Room 548, Oklahoma City, OK 73102. Proprietary data should be identified as such to ensure confidentiality.

FOR FURTHER INFORMATION CONTACT: Paul W. Tanner, Area Manager, or Brian Mills, RMP Team Leader, Oklahoma Resource Area, (405) 231-5491.

SUPPLEMENTARY INFORMATION: The planning area for the Oklahoma RMP will include all BLM managed surface and mineral estate within Oklahoma. Significant resource issues will be identified during the first phase of the RMP process scheduled to commence in June of 1990. The development of the coal resource is anticipated to be one of the issues addressed in the RMP. Information acquired from this call will be used to identify and categorize areas of coal development potential within the planning area.

Industry and other interested parties are asked to provide any information that will be useful in meeting the requirements of the Federal Coal Management Program defined in 43 CFR 3420, including application of the coal planning screens and future activity planning such as tract delineation, ranking and selection.

Information resulting from this call will be utilized in the application of the unsuitability criteria and the development of other resource use screens.

The type of information needed includes, but is not limited to the following:

1. Location.
 - (a) Tracts desired by mining companies should include a narrative description with areas delineated on a map with a scale of not less than 1/2 inch to the mile.
 - (b) Descriptions of both public and private industry coal users in the general region.
 2. Quantity needs (tonnage, dates) for both public and private industry coal users and coal developers.
 3. Quality needs (by type and grade) for end users of the coal.
 4. Coal reserve drilling data which may pertain to the planning area.
 5. Information relating to surface and mineral ownership.
 - (a) Surface owner consents previously granted, whether consent is transferable, surface owner leases with coal companies.
 - (b) Non-Federal, or fee coal ownership adjacent to Federal tracts currently leased or mined.
 6. Other resource values occurring within the planning area which may conflict with coal development.
 - (a) Identify the resource value, location by narrative description and may (1/2 inch to the mile) delineation.
 - (b) State the reasons the particular resource would conflict with coal development.
- Any individual, business entity, or public body may participate in this

process by providing coal or other resource information under this call. Public participation activities involved with the preparation of the Oklahoma RMP will be conducted in accordance with all BLM land use planning regulations and requirements, and will be announced at a later date.

Larry L. Woodard,
State Director.

Dated: January 29, 1989.

[FR Doc. 89-2634 Filed 2-3-89; 8:45 am]

BILLING CODE 4310-FB-M

National Park Service

Cancellation of a Notice of Intent To Prepare an Environmental Impact Statement for the Congaree Swamp National Monument, SC

SUMMARY: Notice is hereby given that the National Park Service is cancelling the notice issued in the *Federal Register* of April 21, 1980, (45 FR 26828) for the preparation of an environmental impact statement on the Congaree Swamp National Monument, South Carolina. A general management plan with an environmental assessment and a Finding of No Significant Impact were issued on December 13, 1988.

FOR FURTHER INFORMATION CONTACT:

Jacob J. Hoogland, Chief, Environmental Compliance Division, National Park Service, U.S. Department of the Interior, 18th and C Streets, NW., Room 1210, Washington, DC 20240, telephone (202) 343-2163.

Date: January 30, 1989.

James W. Stewart,

Acting Associate Director, Planning and Development.

[FR Doc. 89-2635 Filed 2-3-89; 8:45 am]

BILLING CODE 4310-70-M

Melozitna Wild and Scenic River Study Area, Alaska

AGENCY: National Park Service, Department of the Interior

ACTION: Termination of Environmental Impact Statement Process

SUMMARY: On November 20, 1981, the National Park Service issued a Notice of Intent (46 FR 57140) to prepare an Environmental Impact Statement for the potential designation of Melozitna Wild and Scenic River, Alaska.

The area was studied for potential designation under the criteria found in Section 2(b) and as directed in Section 4 of the Wild and Scenic Rivers Act, as amended. The study was completed and the area was found to be ineligible for designation. As a result, an EIS will not

be prepared and the process is hereby terminated.

FOR FURTHER INFORMATION CONTACT:

Jacob J. Hoogland, Chief, Environmental Compliance Division, National Park Service, U.S. Department of the Interior, Room 1210, 18th and C Streets, NW., Washington, DC 20240, telephone (202) 343-2163.

January 30, 1989.

James W. Stewart,

Acting Associate Director, Planning and Development, National Park Service.

[FR Doc. 89-2636 Filed 2-3-89; 8:45 am]

BILLING CODE 4310-70-M

Wild and Scenic River Study Areas Alaska; Porcupine Wild and Scenic River et al.

AGENCY: National Park Service, Department of the Interior.

ACTION: Termination of Environmental Impact Statement Process.

SUMMARY: The National Park Service issued Notices of Intent to prepare Environmental Impact Statements for the following three potential National Wild and Scenic River designations in Alaska:

November 20, 1981, 46 FR 57140 Porcupine

Wild and Scenic River

November 20, 1981, 46 FR 57140 Kisaralik

Wild and Scenic River

December 16, 1982, 47 FR 56416 Kanektok

Wild and Scenic River.

All three areas were studied for potential designation under the criteria found in section 2(b) and direction of section 4 of the Wild and Scenic Rivers Act, as amended. All relevant studies were completed and the three aforementioned river study areas were found to be eligible for designation. However, their designation was not recommended by the Department of the Interior to the Congress. As a result, an EIS will not be prepared and the process is hereby terminated.

FOR FURTHER INFORMATION CONTACT:

Jacob J. Hoogland, Chief, Environmental Compliance Division, National Park Service, U.S. Department of the Interior, Room 1210, 18th and C Streets NW., Washington, DC 20240, telephone (202) 343-2163.

January 30, 1989.

James W. Stewart,

Acting Associate Director, Planning and Development, National Park Service.

[FR Doc. 89-2637 Filed 2-3-89; 8:45 am]

BILLING CODE 4310-70-M

Landmark Review Committee of Advisory Board; Meeting

AGENCY: National Park Service.

ACTION: Notice of Meeting of Landmark Review Committee of Advisory Board.

SUMMARY: Notice is hereby given in accordance with the Federal Advisory Commission Act that a meeting of the Landmark Review Committee of the Secretary of the Interior's National Park System Advisory Board will be held at 9:00 a.m. at the following location and date.

DATE: March 1, 1989.

ADDRESS: 1100 L Street NW. (12th Floor Conference Room 12126), Washington, DC.

FOR FURTHER INFORMATION CONTACT:

Benjamin Levy, Senior Historian, History Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127. Telephone (202) 343-8164.

SUPPLEMENTARY INFORMATION: The purpose of the Landmark Review Committee of the Secretary of the Interior's National Park System Advisory Board is to evaluate studies of historic properties in order to advise the full National Park System Advisory Board meeting on April 24, 1989 of the qualifications of properties being proposed for National Historic Landmark designation, and to recommend to the full Board, those properties that the Committee finds meet the criteria of the National Historic Landmarks Program. The members of the Landmark Review Committee are:

Mr. Robert Burley, Chair
Dr. Holly Anglin Robinson
Dr. Alfonz Lengyel
Mrs. Anne Walker

The meeting will include presentations and discussions on the national historic significance and the integrity of numerous properties being nominated for National Historic Landmark designation. These nominations include architectural properties located in California, Massachusetts, Michigan, New York, Rhode Island, and Wisconsin; maritime resources located in Alabama, California, Florida, Illinois, Kentucky, Louisiana, Maine, Massachusetts, New York, Ohio, Oregon, South Carolina, Virginia, and Washington; archeological properties located in California and Mississippi; and an industrial site in Pennsylvania.

The meeting will be open to the public. However, facilities and space for accommodating members of the public are limited. Any member of the public may file with the Committee a written

statement concerning matters to be discussed. Written statements may be submitted to the Senior Historian, History Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127. Minutes of the meeting will be available in the office of the History Division, National Park Service, WASO, for public inspection approximately 4 weeks after the meeting.

Dated: January 31, 1989.

Rowland P. Bowers,

Associate Director, Cultural Resources,
National Park Service, WASO.

[FR Doc. 89-2688 Filed 2-3-89; 8:45 am]

BILLING CODE 4310-70-M

INTERSTATE COMMERCE COMMISSION

Intent To Engage in Compensated Intercompany Hauling Operations

This is to provide notice as required by 49 U.S.C. 10524(b)(1) that the named corporations intend to provide or use compensated intercompany hauling operations as authorized in 49 U.S.C. 10524(b).

A. 1. Parent Company and address of principal office: Kraft, Inc., Kraft Court, Glenview, IL 60025.

2. Wholly-Owned subsidiaries which will participate in the operations and state(s) of incorporation:

- A. American Fruit & Produce Company, Inc. (Minnesota)
- B. Anderson Clayton/Humko Products, Inc. (Delaware)
- C. Cheese Analog Corp. (Delaware)
- D. Chiffon Corp. (Delaware)
- E. Churny Company, Inc. (Delaware)
- F. Craig Distributing Company (Missouri)
- G. Frostex Foods, Inc. (Texas)
- H. H.F. Behrhorst & Son, Inc. (Delaware)
- I. Holleb & Company (Illinois)
- J. I. Feldman and Company, Inc. (Delaware)
- K. Kraft Food Ingredients Corp. (District of Columbia)
- L. NewCow, Inc. (Delaware), (i) Pollio Dairy Products Corp. (New York)
- M. Sagecoach Express, Inc. (Illinois)
- N. The All American Gourmet Company (Delaware)
- O. Tombstone Pizza Corp. (Delaware)

B. 1. The parent corporation and its principal office are: Trachte Company, Inc., (formerly, Trachte Sales & Construction Corp.), 422 North Burr Oak Avenue, Oregon, Wisconsin 53575.

2. The wholly-owned subsidiaries which will participate in the operation and their states of incorporation are the following:

- a. Dane Contracting, Inc., 422 North Burr Oak Avenue, Oregon, Wisconsin

53575 (a Wisconsin business corporation).

b. Trachte Manufacturing Corporation, 422 North Burr Oak Avenue, Oregon, Wisconsin 53575 (a Wisconsin business corporation).

c. Trachte Steelflex Corporation, 422 North Burr Oak Avenue, Oregon, Wisconsin 53575 (a Wisconsin business corporation).

Noreta R. McGee,

Secretary.

[FR Doc. 89-2651 Filed 2-3-89; 8:45 am]

BILLING CODE 7035-01-M

[Finance Docket No. 31379]

Chicago and North Western Transportation Co.; Trackage Rights Exemption; Wisconsin River Rail Transit Commission and Wisconsin & Calumet Railroad Co.

Wisconsin River Rail Transit Commission and Wisconsin & Calumet Railroad Company have agreed to grant local and overhead trackage rights to Chicago and North Western Transportation Company between milepost 19.6 and milepost 20.6 in Waukesha, WI. The trackage rights became effective on January 23, 1989.

This notice is filed under 49 CFR 1180.2(d)(7). Petitions to revoke the exemption under 49 U.S.C. 10505(d) may be filed at any time. The filing of a petition to revoke will not stay the transaction. Pleadings must be filed with the Commission and served on Myles L. Tobin, Chicago and North Western Transportation Company, One North Western Center, Chicago, IL 60606.

As a condition to the use of this exemption, any employees affected by the trackage rights, will be protected pursuant to *Norfolk and Western Ry. Co.—Trackage Rights—BN*, 354 I.C.C. 605 (1978), as modified in *Mendocino Coast Ry., Inc.—Lease and Operate*, 360 I.C.C. 653 (1980).

Dated: January 31, 1989.

By the Commission, Jane F. Mackall,
Director, Office of Proceedings.

Noreta R. McGee,

Secretary.

[FR Doc. 89-2652 Filed 2-3-89; 8:45 am]

BILLING CODE 7035-01-M

[Docket No. AB-290; Sub-No. 60X]

Southern Railway Co.; Abandonment Exemption Between Leaksville Junction and Axton, VA

Applicant has filed a notice of exemption under 49 CFR Part 1152, Subpart F—*Exempt Abandonments* to abandon its 9-mile line of railroad

between milepost 21.0-DW near Leaksville Junction, VA, and milepost 30.0-DW at Axton, VA.

Applicant has certified that: (1) No local traffic has moved over the line for at least 2 years; (2) any overhead traffic on the line can be rerouted over other lines; and (3) no formal complaint filed by a user of rail service on the line (or a State or local government entity acting on behalf of such user) regarding cessation of service over the line either is pending with the Commission or with any U.S. District Court or has been decided in favor of the complainant within the 2-year period. The appropriate State agency has been notified in writing at least 10 days prior to the filing of this notice.

As a condition to use of this exemption, any employee affected by the abandonment shall be protected under *Oregon Short Line R. Co.—Abandonment—Goshen*, 360 I.C.C. 91 (1979). To address whether this condition adequately protects affected employees, a petition for partial revocation under 49 U.S.C. 10505(d) must be filed.

Provided no formal expression of intent to file an offer of financial assistance has been received, this exemption will be effective on March 8, 1989 (unless stayed pending reconsideration). Petitions to stay that do not involve environmental issues,¹ formal expressions of intent to file an offer of financial assistance under 49 CFR 1152.27(c)(2),² and trail use/ rail banking statements under 49 CFR 1152.29 must be filed by February 16, 1989.³ Petitions for reconsideration and requests for public use conditions under 49 CFR 1152.28 must be filed by February 27, 1989 with: Office of the Secretary, Case Control Branch, Interstate Commerce Commission, Washington, DC 20423.

A copy of any petition filed with the Commission should be sent to applicant's representative: Roger A.

¹ A stay will be routinely issued by the Commission in those proceedings where an informed decision on environmental issues (whether raised by a party or by the Section of Energy and Environment in its independent investigation) cannot be made prior to the effective date of the notice of exemption. See *Exemption of Out-of-Service Rail Lines*, 4 I.C.C.2d 400 (1988). Any entity seeking a stay involving environmental concerns is encouraged to file its request as soon as possible in order to permit this Commission to review and act on the request before the effective date of this exemption.

² See *Exempt. of Rail Abandonment—Offers of Finan. Assist.*, 4 I.C.C.2d 184 (1987), and final rules published in the *Federal Register* on December 22, 1987 (52 FR 48440-48446).

³ The Commission will accept a late-filed trail use statement so long as it retains jurisdiction to do so.

Petersen, Norfolk Southern Corporation, Three Commercial Place, Norfolk, VA 23510.

If the notice of exemption contains false or misleading information, use of the exemption is void *ab initio*.

Applicant has filed an environmental report which addresses environmental or energy impacts, if any, from this abandonment.

The Section of Energy and Environment (SEE) will prepare an environmental assessment (EA). SEE will issue the EA by February 10, 1989. Interested persons may obtain a copy of the EA from SEE by writing to it (Room 3115, Interstate Commerce Commission, Washington, DC 20423) or by calling Carl Bausch, Chief, SEE at (202) 275-7316. Comments on environmental and energy concerns must be filed within 15 days after the EA becomes available to the public.

Environmental, public use, or trail use/rail banking conditions will be imposed, where appropriate, in a subsequent decision.

Decided: January 27, 1989.

By the Commission, Jane F. Mackall, Director, Office of Proceedings.

Noreta R. McGee,

Secretary.

[FR Doc. 89-2540 Filed 2-3-89; 8:45 am]

BILLING CODE 7035-01-M

DEPARTMENT OF JUSTICE

Lodging of Consent Decree Pursuant to the Clean Water Act; Arcadia, FL, et al.

In accordance with Department policy, 28 CFR 50.7, notice is hereby given that on January 23, 1989 a proposed Consent Decree in *United States v. City of Arcadia, Florida and the State of Florida*, Civil Action No. 87-24-Civ-FTM-10(A) was lodged with the United States District Court for the Middle District of Florida, Fort Myers Division. The proposed Consent Decree requires that the City upgrade its sewage treatment plant and demonstrate compliance with its permit by July 1, 1991. The Decree also requires the City to meet interim effluent limitations and to pay a civil penalty of \$40,000.

The Department of Justice will receive for a period of thirty (30) days from the date of this publication comments relating to the proposed Consent Decree. Comments should be addressed to the Assistant Attorney General of the Land and Natural Resources Division, Department of Justice, Washington, DC 20530, and should refer to City of

Arcadia, Florida, D.O.J. Ref. 90-5-1-1-2782.

The proposed Consent Decree may be examined at the office of the United States Attorney, Middle District of Florida, United States Courthouse, Tampa, Florida and at the Region IV, Offices of the Regional Counsel, Environmental Protection Agency, 345 Courtland Street, NE., Atlanta, Georgia. Copies of the Consent Decree may be examined at the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice, Room 1517, Ninth Street and Pennsylvania Avenue, NW., Washington, DC 20530. A copy of the proposed Consent Decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. In requesting a copy, please enclose a check in the amount of \$1.90 (10 cents per page reproduction cost) payable to the Treasurer of the United States.

Roger J. Marzulla,

Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89-2647 Filed 2-3-89; 8:45 am]

BILLING CODE 4410-01-M

Lodging of Consent Decree Pursuant to the Clean Water Act; Bayonne, NJ et al.

In accordance with departmental policy, 28 CFR 50.7, notice is hereby given that on January 25, 1989, a proposed consent decree in *United States of America v. City of Bayonne, New Jersey*, consolidated with *United States v. City of Hoboken*, Civil Action No. 79-2030, was lodged with the United States District Court for the District of New Jersey. The proposed consent decree settles the United States' claims against Bayonne under the Clean Water Act, relating to discharges from Bayonne's municipal sewage treatment plants in violation of effluent limitations and other applicable permit requirements.

The proposed consent decree requires Bayonne to construct a pipeline and other facilities necessary to connect its sewerage system to a regional wastewater treatment plant operated by the Passaic Valley Sewerage Commissioners (PVSC) in Newark, and to divert all sewage in Bayonne to the PVSC facility by December 30, 1989. The decree also requires (1) payment of \$170,000 in settlement of the United States' civil penalty claims, (2) compliance with interim effluent limitations until the connection to the PVSC facility is completed, and (3)

various interim operating improvements at Bayonne's existing treatment facilities.

The Department of Justice will receive comments relating to the proposed consent decree for a period of thirty (30) days from the date of this publication. Comments should be relating to the proposed consent decree for a period of thirty (30) days from the date of this publication. Comments should be addressed to the Assistant Attorney General, Land and Natural Resources Division, Department of Justice, Washington, DC 20530, and should refer to *United States v. City of Bayonne, D.J. Ref. 90-5-1-1-2552*.

The proposed consent decree may be examined at the offices of the United States Attorney, Federal Building, 970 Broad Street, Newark, New Jersey 07102, and at the Region II office of the Environmental Protection Agency, 26 Federal Plaza, New York, NY 10278. A copy of the consent decree may also be examined at the Environmental Enforcement Section, Land and Natural Resources Division, Department of Justice, Room 1517, Ninth Street and Pennsylvania Avenue, NW., Washington, DC 20530. Copies of the proposed consent decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. In requesting a copy, please enclose a check in the amount of \$2.70 (10 cents per page reproduction cost) payable to the Treasurer of the United States.

Donald A. Carr,

Acting Assistant Attorney General, Land & Natural Resources Division.

[FR Doc. 89-2648 Filed 2-3-89; 8:45 am]

BILLING CODE 4410-01-M

Lodging of Consent Decree Pursuant to the Safe Drinking Water Act; Bolton, MS

In accordance with Department policy, 28 CFR 50.7, notice is hereby given that on 1-17-89 a proposed Consent Decree in *United States v. Town of Bolton, Mississippi*, Civil Action No. J89-0027(W) was lodged with the United States District Court for the Southern District of Mississippi. The proposed Consent Decree concerns compliance with the Safe Drinking Water Act by the Town of Bolton, Mississippi. The proposed Consent Decree requires Bolton, which owns and operates a public water supply system serving approximately one thousand fifty-six (1056) individuals, upon entry of the Consent Decree, to comply with all

applicable requirements of 40 CFR § 141.21, 141.31, 141.32, and 141.14 relating to the Safe Drinking Water Act. Under the proposed Consent Decree, Bolton will be required to submit monthly reports to the Environmental Protection Agency (EPA) and the Mississippi State Department of Health, Division of Water Supply, copies of all reports necessary to demonstrate compliance with sampling for microbiological contaminants, and sampling and analytical requirements for coliform bacteria. Bolton, under the proposed Consent Decree, will be required to report all violations and anticipated violations of the Consent Decree to the EPA and Mississippi State Department of Health, Division of Water Supply. In addition, the proposed Consent Decree requires Bolton to hire and continue to employ for a minimum of three years from the date of entry of the Consent Decree a Certified Operator to operate and maintain the Town's public water supply system, so as to ensure compliance with all applicable federal and state statutes and regulations. The proposed Consent Decree provides for graduated stipulated penalties for Bolton's failure to comply with the terms contained in the Consent Decree. Bolton will pay the United States a civil penalty of six thousand dollars (\$6,000) for past violations of the Safe Drinking Water Act. Termination of the Consent Decree is effected upon satisfactory compliance with all of the terms of the Decree, including the payment of penalties and the employment of a Certified Operator, and upon compliance with the Safe Drinking Water Act for a period of twelve consecutive months.

The Department of Justice will receive for a period of thirty (30) days from the date of this publication comments relating to the proposed Consent Decree. Comments should be addressed to the Assistant Attorney General of the Land and Natural Resources Division, Department of Justice, Washington, DC 20530, and should refer to Town of Bolton, Mississippi, D.J. Ref. 90-5-1-1-376.

The proposed Consent Decree may be examined at the office of the United States Attorney, Southern District of Mississippi, United States Courthouse, Jackson, Mississippi, and at the Region IV, Office of the Environmental Protection Agency, 345 Courtland Street, NE., Atlanta, Georgia. Copies of the Consent Decree may be examined at the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice, Room 1517, Ninth Street and Pennsylvania Avenue,

NW., Washington, DC 20530. A copy of the proposed Consent Decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. In requesting a copy, please enclose a check in the amount of \$1.10 (10 cents per page reproduction cost) payable to the Treasurer of the United States.

Donald A. Carr,

Acting Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89-2646 Filed 2-3-89; 8:45 am]

BILLING CODE 4410-01-M

Lodging of Consent Decree Pursuant to the Clean Water Act; Crown Cork & Seal Co., Inc.

In accordance with Departmental policy, 28 CFR 50.7, notice is hereby given that on January 17, 1989 a proposed Consent Decree in *United States v. Crown Cork and Seal Company, Inc.* was lodged with the United States District Court of the District of Wyoming. The proposed decree arises out of a case alleging various violations of general and categorical pretreatment regulations promulgated by the Environmental Protection Agency (EPA) for enforcement of the Clean Water Act, 33 U.S.C. 1251 *et seq.* The proposed decree requires (1) that Crown comply with the general pretreatment regulations requiring the submission of sampling and monitoring reports; (2) that it construct an engineering study of the operation of the treatment system of its Worland, Wyoming plant and construct the modifications necessary to bring the level of the pollutants fluoride, manganese, and oil and grease down to the level fixed in the categorical pretreatment regulations; and (3) that Crown pay a \$85,000 civil penalty in consequence of past violations of the Act.

The Department of Justice will receive for a period of thirty (30) days from the date of publication of this notice comments relating to the proposed Consent Decree. Comments should be addressed to the Assistant Attorney General, Land and Natural Resources Division, Department of Justice, Washington, DC 20530, and should refer to *United States v. Crown Cork and Seal Company, Inc.* 90-5-1-1-2957.

The proposed Consent Decree may be examined at the Office of the United States Attorney, J.C. Mahoney, Federal Building, 2120 Capitol Avenue, Cheyenne, Wyoming 82001, at the Region VIII office of the Environmental Protection Agency, 999 18th Street,

Denver, Colorado 80201, and at the Environmental Enforcement Section, Land and Natural Resources Division, Department of Justice, Rm. 1515, Ninth Street and Pennsylvania Avenue, NW., Washington, DC 20530. A copy of the proposed Consent Decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. In requesting a copy, please enclose a check in the amount of \$2.00 for reproduction costs, payable to the "Treasurer of the United States."

Roger J. Marzulla,

Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89-2614 Filed 2-3-89; 8:45 am]

BILLING CODE 4401-01-M

Lodging of Consent Decree Pursuant to the Clean Air Act; Lenox, Inc.

In accordance with Department policy, 28 CFR 50.7, notice is hereby given that on January 30, 1989, a proposed consent decree in *United States of America v. Lenox, Inc.*, Civ. No. 88-1324, was lodged with the United States District Court for the Western District of Pennsylvania.

The proposed consent decree resolves a judicial enforcement action brought by the United States, on behalf of the Environmental Protection Agency ("EPA"), against Lenox, Inc. for violations of the Clean Air Act. The complaint filed by the United States alleged that defendant violated the National Emission Standard for Hazardous Air Pollutants ("NESHAP") for arsenic, promulgated pursuant to section 112 of the Act, in connection with the operation of its glass manufacturing facility in Mt. Pleasant, Pennsylvania.

The proposed consent decree enjoins defendant from violating the arsenic NESHAP in the future and requires defendant to submit certain reports to EPA biannually for a period of one year. The proposed consent decree also requires defendant to pay a civil penalty of \$60,000 to the United States Treasury.

The Department of Justice will receive for a period of thirty (30) days from the date of this publication comments relating to the proposed consent decree. Comments should be addressed to the Assistant Attorney General, Land and Natural Resources Division, Department of Justice, Box 7611, Ben Franklin Station, Washington, DC 20044, and should refer to *United States of America v. Lenox, Inc.*, D.O.J. Ref. 90-5-2-1-1239.

The proposed consent decree may be examined at the office of the United States Attorney, Western District of Pennsylvania, 633 U.S. Courthouse, 7th Avenue and Grant Street, Pittsburgh, Pennsylvania 15219, and at the Region III office of the Environmental Protection Agency, Office of Regional Counsel, Attention: Marcia E. Mulkey, 841 Chestnut Building, Philadelphia, Pennsylvania 19107. A copy of the proposed consent decree may also be examined at the Environmental Enforcement Section, Land and Natural Resources Division, U.S. Department of Justice, Room 1521, Ninth Street and Pennsylvania Avenue, NW., Washington, DC 20530. A copy of the proposed consent decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division, Department of Justice.

Donald A. Carr,

Acting Assistant Attorney General, Land and Natural Resources Division, U.S. Department of Justice.

[FR Doc. 89-2645 Filed 2-3-89; 8:45 am]

BILLING CODE 4410-01-M

Lodging of Consent Decree Pursuant to the Clean Air Act; Muskegon Asphalt Paving Co.

In accordance with Department policy, 28 CFR 50.7, notice is hereby given that a proposed partial consent decree in *United States of America v. Muskegon Asphalt Paving Company*, Civil Action No. G87-465-CA6, was lodged with the United States District Court for the Western District of Michigan. The complaint filed by the United States in this action alleged that defendant violated sections 111 and 114 of the Clean Air Act, 42 U.S.C. 7411 and 7414, by operating a hot mix asphalt facility located in Muskegon, Michigan (the "Muskegon Plant") without conducting required new source performance tests in accordance with 40 CFR 60.8 and by exceeding applicable new source performance standards ("NSPS") limiting the allowable particulate content and opacity of emissions from the Muskegon Plant.

Under the proposed consent decree, defendant must conduct a performance test, using a test protocol approved by U.S. EPA, to demonstrate whether emissions from the Muskegon Plant comply with the limitations set forth in 40 CFR 60.92. Should this performance test indicate that the Muskegon Plant has not attained compliance with the requirements of 40 CFR 60.92, defendant would be required to repair, modify or replace the Plant's existing baghouse

and thereafter demonstrate compliance with applicable NSPS requirements in accordance with a compliance schedule set forth in the proposed decree. The proposed decree also requires defendants to pay a civil penalty of \$-7,500 for violations of sections 111 and 114 of the Clean Air Act.

The Department of Justice will receive comments relating to the proposed consent decree for a period of thirty (30) days from the date of this publication. Comments should be addressed to the Assistant Attorney General of the Land and Natural Resources Division, Department of Justice, Washington, DC and should refer to *United States of America v. Muskegon Asphalt Paving Company*, D.J. Ref. No. 90-5-2-1-1108.

The proposed Consent Decree may be examined at the office of the United States Attorney, Room 399, Federal Building, 110 Michigan Street NW., Grand Rapids, Michigan 49503 and at the Office of Regional Counsel, United States Environmental Protection Agency, Region V, 111 West Jackson Street, Third Floor, Chicago, Illinois 60604. Copies of the proposed consent decree may be examined at the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice, Room 1515, Ninth Street and Pennsylvania Avenue, NW., Washington, DC 20530. A copy of the proposed consent decree may be obtained in person or by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. In requesting a copy, please enclose a check in the amount of \$2.10 (ten cents per page reproduction cost) payable to the Treasurer of the United States.

Donald Carr,

Acting Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89-2615 Filed 2-3-89; 8:45 am]

BILLING CODE 4410-01-M

Antitrust Division

Notice Pursuant to the National Cooperative Research Act of 1984; Computer Aided Manufacturing—International, Inc.

Notice is hereby given that, on January 9, 1989, pursuant to section 6(a) of the National Cooperative Research Act of 1984, 15 U.S.C. 4301 *et seq.* ("the Act"), Computer Aided Manufacturing—International, Inc. ("CAM-I") filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in the membership and research and development project areas of CAM-

I. The notifications were filed for the purpose of invoking the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.

The current industrial member companies in North America are: Allied Aerospace; Allied-Signal Aerospace Co.; Arthur Andersen & Co.; AT&T; Avery International; Beckman Instruments; Boeing Computer Services; Campbell Soup Company; Carnation Company; Caterpillar, Inc.; Coopers & Lybrand; Dana Corporation; Deere & Company; Deloitte Haskins & Sells; Eastman Kodak Co.; Eaton Corporation; Electronic Data Systems; Ernst & Whinney; General Dynamics; General Electric Co.; Grumman Aerospace; Hewlett-Packard Co.; Honeywell, Inc.; Hughes Aircraft Co.; Johnson Controls; Lockheed Aeronautical Systems Co.-Georgia Division; Lockheed Missiles & Space Co.; LTV Aerospace & Defense Co.; Management Science America; Martin Marietta Energy Syst.; McDonnell Douglas Corp.; Nabisco Brands, Inc.; Northern Telecom, Ltd.; Northrop Corporation; Parker Hannifin Corp.; Peat Marwick Main & Co.; Price Waterhouse; Rockwell International; Sandia National Laboratories; Structural Dynamics Research Corp.; Texas Instruments, Inc.; Textron, Inc.; Procter & Gamble Co.; U.S. Air Force ASD/PMD; U.S. Dept. of Energy; U.S. Navy OASN(S&L); United Technologies Corp.; Westinghouse Electric Corp.; and Williams International.

The current industrial member companies in Europe are: Aerospatiale; Alcatel NV; British Aerospace PLC; Bull SA; Daimler-Benz AG; Finmeccanica S.P.A.; IVF-Swedish Institute of Production Engineering Research; Lucas Engineering & Syst., Ltd.; Messerschmitt-Bolkow-Blohm; Metaalinstuut TNO; Nuovo Pignone S.P.A. DIV/MACC; Philips International B.V.; Siemens AG ZT ZFA AUT L; The Plessey Company PLC; Valmet Corporation; and Volkswagen AG.

Current industrial member companies in the Asian region are: Fujitsu, Ltd.; Hitachi, Ltd.; Honda Engineering Co.; and Oki Electric Industry Co.

The current industrial member in the Australian region is the Australian Government, Department of Defense.

Current educational members in the United States are: Arizona State University; California Polytechnic State University; Illinois Institute of Technology; Massachusetts Institute of Technology; North Carolina State University; North Texas State University; Oklahoma State University; Purdue University; University of

California; University of Maryland; University of Massachusetts; University of New Hampshire; and University of Southern California.

Current educational members in Europe are: Cambridge University; Cranfield Institute of Technology; Dorset Institute of Higher Education; Helsinki University of Technology; Katholieke Universiteit; Loughborough University of Technology; Politecnico Di Milano; Royal Institute of Technology, Stockholm; Technical Institute of Aachen; Universitaet Fridericiana; and University of Trondheim.

The current educational member in the Asian region is Nanyang Technical Institute.

The planned activities of CAM-I remain unchanged except that the project area relating to sculptured surfaces has been deleted and the "factory management" area has been changed to "intelligent manufacturing management."

On December 26, 1984, the Joint Venture filed its original notification pursuant to section 6(a) of the Act. The Department of Justice ("the Department") published a notice in the *Federal Register* pursuant to section 6(b) of the Act on January 24, 1985, 50 FR 3425-26. Additional notifications showing changes in membership were published in the *Federal Register* on February 26, 1986, 51 FR 6812-13; May 4, 1987, 52 FR 16321-22; and February 12, 1988, 53 FR 4232-33.

Joseph H. Widmar,
Director of Operations, Antitrust Division.
[FR Doc. 89-2649 Filed 2-3-89; 8:45 am]
BILLING CODE 4410-01-M

National Institute of Corrections

Advisory Board Committee Meetings; National Academy of Corrections and Jails Division

Time and Date: 10:00 a.m., Sunday,
February 26, 1989.

Place: Courtyard by Marriott, 4710
Pearl East Circle, Boulder, Colorado.
Status: Open.

Matters To Be Considered: Divisional recommendations for the FY 1990 program plan and budget. The recommendations will be presented at the Advisory Board meeting on Monday, February 27, 1989.

Contact Person for More Information:
Larry Solomon, Deputy Director, (202)
724-3106.

Larry Solomon,
Deputy Director.
[FR Doc. 89-2616 Filed 2-3-89; 8:45 am]
BILLING CODE 4410-36-M

Advisory Board Meeting

Time and Date: 8:00 a.m., Monday,
February 27, 1989.

Place: Courtyard by Marriott, 4710
Pearl East Circle, Boulder, Colorado.
Status: Open.

Matters to be Considered: At the September 19, 1988 Board meeting, the NIC Advisory Board by-Laws were amended reducing the number of standing committees from five to four. The Information Services Committee was eliminated leaving the Prisons, Jails, Community Corrections, and National Academy of Corrections Committees. The Board will review the assignment of Board members to the four standing committees. Other agenda items include: Board review and approval of NIC staff budget and program recommendations for FY 1990, reports from the four standing committees, and the election of the Officers of the Board.

Contact Person for More Information:
Larry Solomon, Deputy Director, (202)
724-3106.

Larry Solomon,
Deputy Director.
[FR Doc. 89-2617 Filed 2-3-89; 8:45 am]
BILLING CODE 4410-36-M

DEPARTMENT OF LABOR

Employment and Training Administration

Investigations Regarding Certifications of Eligibility To Apply for Worker Adjustment Assistance

Petitions have been filed with the Secretary of Labor under section 221(a) of the Trade Act of 1974 ("the Act") and are identified in the Appendix to this notice. Upon receipt of these petitions, the Director of the Office of Trade Adjustment Assistance, Employment and Training Administration, has instituted investigations pursuant to section 221(a) of this Act.

The purpose of each of the investigations is to determine whether the workers are eligible to apply for adjustment assistance under Title II, Chapter 2, of the Act. The investigations will further relate, as appropriate, to the determination of the date on which total or partial separations began or threatened to begin and the subdivision of the firm involved.

The petitioners or any other persons showing a substantial interest in the subject matter of the investigations may request a public hearing, provided such request is filed in writing with the Director, Office of Trade Adjustment Assistance, at the address shown below, not later than February 16, 1989.

Interested persons are invited to submit written comments regarding the subject matter of the investigations to the Director, Office of Trade Adjustment Assistance, at the address shown below, not later than February 16, 1989.

The petitions filed in this case are available for inspection at the Office of the Director, Office of Trade Adjustment Assistance, Employment and Training Administration, U.S. Department of Labor, 601 D Street NW., Washington, DC, 20213.

Signed at Washington, DC this 17th day of January 1989.

Marvin M. Fooks,
Director, Office of Trade Adjustment
Assistance.

Petitioner (union/workers/firm) and location	Date received	Date of petition	Petition no.	Articles produced
Abex Corporation (USWA), Medina, NY	1/17/89	11/15/88	22,376	Iron and steel castings.
Pool Well Service, Co., (company), Andrews, TX	1/17/89	1/3/89	22,377	Oil and gas.
Pride Well Service, (workers), Andrews, TX	1/17/89	1/3/89	22,378	do.
Texas City Refining, Inc. (workers), Texas City, TX	1/17/89	12/15/88	22,379	do.
Texas Fishing Tools, Inc. (workers), Kilgore, TX	1/17/89	12/29/88	22,380	do.
North American Oil and Gas, Inc. (company), Austin, TX	10/3/88	9/18/88	21,210	do.

¹ Investigation re-opened.

[TA-W-21, 778]

**Amber Refining, Inc. Forth Worth, TX;
Termination of Investigation**

Pursuant to section 221 of the Trade Act of 1974, an investigation was initiated on November 18, 1988 in response to a worker petition received on November 18, 1988 which was filed by the Federated Independent Texas Union on behalf of workers at Amber Refining, Inc., Forth Worth, Texas.

The retroactive provisions of section 1421(a)(1)(B) of the Omnibus Trade and Competitiveness Act of 1988 do not apply to workers who are engaged in the production of crude oil or refined petroleum products if such workers were eligible to be certified for benefits under the Trade Act prior to the implementation of the retroactive provisions.

All operations at the subject plant were suspended in February of 1986 and have not been reinstated to date. A negative determination applicable to the petitioning group of workers was issued on November 20, 1986 (TA-W-858). No new information is evident which would result in a reversal of the Department's previous determination.

All workers were separated from the subject firm more than one year prior to the date of the current petition. Section 223 of the Act specifies that no certification may apply to any worker whose last separation occurred more than one year before the date of the petition. Consequently, further investigation in this case would serve no purpose, and the investigation has been terminated.

Signed at Washington, DC, this 17th day of January, 1989.

Marvin M. Fooks,

Director, Office of Trade Adjustment Assistance.

[FR Doc. 89-2603 Filed 2-3-89; 8:45 am]

BILLING CODE 4510-30-M

[TA-W-21, 787]

**Arctic Surveys Co., Fairbanks, AK;
Termination of Investigation**

Pursuant to section 221 of the Trade Act of 1974, an investigation was initiated on November 18, 1988 in response to a worker petition which was filed by Teamsters Local 959 on behalf of workers and former workers at Arctic Surveys Company, Fairbanks, Alaska.

All workers were separated from the subject firm before October 1, 1985. In accordance with section 223(b) of the Act, as amended by Pub. L. 100-418, no certification may apply to any worker whose last total or partial separation from the subject firm occurred before October 1, 1985. Consequently, further investigation in this case would serve no purpose, and the investigation has been terminated.

Signed at Washington, DC, this 23rd day of January 1989.

Marvin M. Fooks,

Director, Office of Trade Adjustment Assistance.

[FR Doc. 89-2604 Filed 2-3-89; 8:45 am]

BILLING CODE 4510-30-M

**Investigations Regarding
Certifications of Eligibility To Apply for
Worker Adjustment Assistance**

Petitions have been filed with the Secretary of Labor under section 221(a)

of the Trade Act of 1974 ("the Act") and are identified in the Appendix to this notice. Upon receipt of these petitions, the Director of the Office of Trade Adjustment Assistance, Employment and Training Administration, has instituted investigations pursuant to section 221(a) of the Act.

The purpose of each of the investigations is to determine whether the workers are eligible to apply for adjustment assistance under Title II, Chapter 2, of the Act. The investigations will further relate, as appropriate, to the determination of the date on which total or partial separations began or threatened to begin and the subdivision of the firm involved.

The petitioners or any other persons showing a substantial interest in the subject matter of the investigations may request a public hearing, provided such request is filed in writing with the Director, Office of Trade Adjustment Assistance, at the address shown below, not later than February 16, 1989.

Interested persons are invited to submit written comments regarding the subject matter of the investigations to the Director, Office of Trade Adjustment Assistance, at the address shown below, not later than February 16, 1989.

The petitions filed in this case are available for inspection at the Office of the Director, Office of Trade Adjustment Assistance, Employment and Training Administration, U.S. Department of Labor, 601 D Street, NW., Washington, DC 20213.

Signed at Washington, DC, this 9th day of January 1989.

Marvin M. Fooks,

Director, Office of Trade Adjustment Assistance.

APPENDIX

Petitioner (Union/Workers/Firm)	Location	Date received	Date of petition	Petition number	Articles produced
Basin Well Service (Workers)	Odessa, TX	1/9/89	12/23/88	22,340	Oil & Gas.
Beckman's Consulting Serv. (IDPC)	Williston, ND	1/9/89	11/15/88	22,341	Oil & Gas.
Blackhawk Drilling & Exploration Inc. (Workers)	Midland, TX	1/9/89	12/19/88	22,342	Oil & Gas.
Box Pipe & Supply (Workers)	Odessa, TX	1/9/89	12/22/88	22,343	Oil & Gas.
Certified Metals (Workers)	Clifton, NJ	1/9/89	12/19/88	22,344	Jewelry.
Cliffs Drilling Co. (Workers)	Scott, LA	1/9/89	11/15/88	22,345	Oil & Gas.
D.L. Ray, Inc. (Workers)	Richardson, TX	1/9/89	12/14/88	22,346	Oil & Gas.
Delta Drilling Co. (Workers)	Tyler, TX	1/9/89	10/25/88	22,347	Oil & Gas.
Electronic Data (Workers)	Hamilton, OH	1/9/89	12/20/88	22,348	Metal Stampings.
Farmland Refinery (Workers)	Coffeyville, KS	1/9/89	12/16/88	22,349	Oil & Gas.
Garden Drilling Co. (Workers)	Salem, IL	1/9/89	12/18/88	22,350	Oil & Gas.
Gas Co. of New Mexico	Bloomfield, NM	1/9/89	11/28/88	22,351	Oil & Gas.
Gasfield Specialists Inc.	Shinglehouse, PA	1/9/89	11/14/88	22,352	Oil & Gas.
Geer Tank Trucks, Inc. (Workers)	Jacksboro, TX	1/9/89	12/22/88	22,353	Oil & Gas.
Goebel United States (Workers)	Pennington, NJ	1/9/89	12/27/88	22,354	Figurines.
Guiberson Div. of Dresser Industries, Inc.	Houston, TX	1/9/89	12/19/88	22,355	Oil & Gas.
Honeywell Bull Phoenix Operations (Workers)	Phoenix, AZ	1/9/89	12/20/88	22,356	Computers.
Imprimis Technology, Inc. (Workers)	Aberdeen, SD	1/9/89	12/19/88	22,357	Read/Write Assemblies.
Kaiser Coal Corp. (UMWA)	Sunnyside, UT	1/9/89	12/15/88	22,358	Coal.
Leverenz Shoe Co. (Workers)	Valders, WI	1/9/89	11/26/88	22,359	Shoes.

APPENDIX—Continued

Petitioner (Union/Workers/Firm)	Location	Date received	Date of petition	Petition number	Articles produced
Martin-Copeland Co. (Workers)	E. Providence, RI	1/9/89	12/6/88	22,360	Eyeglass Frames.
Model Expo Inc.-Euro Imports	Wharton, NJ	1/9/89	12/30/88	22,361	Ship Model Kits.
National Tool (Workers)	Kenilworth, NJ	1/9/89	12/14/88	22,362	Mold Sets & Com.
Netti Dress Co. (Workers)	Newark, NJ	1/9/89	12/22/88	22,363	Children's Dresses.
North American Exploration (Workers)	Englewood, CO	1/9/89	12/19/88	22,364	Oil & Gas.
Petrofina Delaware, Inc. (Workers)	Houston, TX	1/9/89	12/19/88	22,365	Oil & Gas.
Portage Mills Co. (TWU)	St. Portage, WI	1/9/89	12/23/88	22,366	Socks.
R&M Kaufmann (Workers)	Aurora, IL	1/9/89	11/30/88	22,367	Dresses.
Rosanna Optical Case, Inc. (Workers)	Paterson, NJ	1/9/89	12/22/88	22,368	Optical Cases.
Schlumberger Well Serv. (Workers)	Traverse City, MI	1/9/89	12/21/88	22,369	Oil & Gas.
See-Land Drilling Co. (Workers)	Houma, LA	1/9/89	12/27/88	22,370	Oil & Gas.
Silver Creek Oil & Gas Inc.	Wichita, KS	1/9/89	12/18/88	22,371	Oil & Gas.
Sundown Well Service (Workers)	Brownfield, TX	1/9/89	12/19/88	22,372	Oil & Gas.
Thompson Electron Tubes & Devices Corp. (IUE)	Dover, NJ	1/9/89	12/19/88	22,373	Electronic Devices.
Tubular Corporation of America	Muskogee, OK	1/9/89	12/19/88	22,374	Oil & Gas.
White Swan Lumber (Workers)	White Swan, WA	1/9/89	12/28/88	22,375	Lumber.

[FR Doc. 89-2605 Filed 2-3-89; 8:45 am]

BILLING CODE 4510-30-M

[TA-W-21,818]

Construction & Rigging Anchorage, AK; Termination of Investigation

Pursuant to section 221 of the Trade Act of 1974, an investigation was initiated on November 18, 1988 in response to a worker petition which was filed by Teamsters Local 959 on behalf of workers and former workers at Construction & Rigging, Anchorage, Alaska.

All workers were separated from the subject firm before October 1, 1985. In accordance with section 223(b) of the Act, as amended by Pub. L. 100-418, no certification may apply to any worker whose last total or partial separation from the subject firm occurred before October 1, 1985. Consequently, further investigation in this case would serve no purpose; and the investigation has been terminated.

Signed at Washington, DC, this 23rd day of January 1989.

Marvin M. Fooks,
Director, Office of Trade Adjustment Assistance.

[FR Doc. 89-2606 Filed 2-3-89; 8:45 am]

BILLING CODE 4510-30-M

Mine Safety and Health Administration

[Docket No. M-89-6-C]

Scarab Energy Corp; Petition for Modification of Application of Mandatory Safety Standard

Scarab Energy Corporation, Route 1, Box 409, Wartburg, Tennessee 37887 has filed a petition to modify the application of 30 CFR 77.1605(k) (berms or guards)

to its Buffalo Mountain No. 4 Mine (I.D. No. 40-02962) located in Morgan County, Tennessee. The petition is filed under section 101(c) of the Federal Mine Safety and Health Act of 1977.

A summary of the petitioner's statements follows:

1. The petition concerns the requirement that beams or guards be provided on the outer banks of elevated roadways.

2. Petitioner states that application of the standard would result in a diminution of safety to the miners affected because berms or guards confine water run off the the road surface, which washes away the surfacing materials and results in a dangerous road surface. Berms would prevent the removal of snow and ice from the roadways.

3. As an alternate method, petitioner states that—

(a) A daily inspection of all coal-hauling vehicles would be made and any defects detected would be corrected before the vehicle is put into service;

(b) All equipment operators would be trained in the use of haulage equipment and the safety of vehicles on haulage roads;

(c) All haulage vehicles would have original manufacturers brakes, and an emergency (parking) braking system;

(d) Roadway surfaces would be kept free of debris, excessive water, snow, and ice, and maintained as free as practicable of small ditches (washboard effects);

(e) Warning signs would be posted designating curves, steep grades, where trucks should shift to a lower gear, and where roadways are reduced to one-lane traffic. Stop signs would be posted where one road intersects another, giving main haulage traffic the right of way, and signs would be posted designating passing points; and

(f) A traffic system would be put into use for these roads requiring that loaded trucks have the right of way on the highwall side of roads regardless of their direction of travel.

4. For these reasons, petitioner requests a modification of the Standard.

Request for Comments

Persons interested in this petition may furnish written comments. These comments must be filed with the Office of Standards, Regulation and Variances, Mine Safety and Health Administration, Room 627, 4015 Wilson Boulevard, Arlington, Virginia 22203. All comments must be postmarked or received in that office on or before March 8, 1989. Copies of the petition are available for inspection at that address.

Date: January 31, 1989

Patricia W. Silvey,
Director, Office of Standards, Regulations and Variances.

[FR Doc. 89-2692 Filed 2-3-89; 8:45 am]

BILLING CODE 4510-43-M

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice No. (89-06)]

Agency Report Forms Under OMB Review

AGENCY: National Aeronautics and Space Administration.

ACTION: Notice of agency report forms under OMB review.

SUMMARY: Under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35), agencies are required to submit proposed information collection requests to OMB for review and approval, and to publish a notice in the

Federal Register notifying the public that the agency has made the submission.

Copies of the proposed forms, the requests for clearance (S.F. 83's), supporting statements, instructions, transmittal letters and other documents submitted to OMB for review, may be obtained from the Agency Clearance Officer. Comments on the items listed should be submitted to the Agency Clearance Officer and the OMB Reviewer.

DATE: Comments are requested by March 8, 1989. If you anticipate commenting on a form but find that time to prepare will prevent you from submitting comments promptly, you should advise the OMB Paperwork Reduction Project and the Agency Clearance Officer of your intent as early as possible.

ADDRESS: Philip D. Waller, NASA Agency Clearance Officer, Code NPN, NASA Headquarters, Washington, DC 20546; Paperwork Reduction Project (2700-xxxx), OMB, Room 3235, New Executive Office Building, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: Shirley C. Peigare, NASA Reports Officer, (202) 453-1090.

Reports

Title: Industry Safety, Reliability, Maintainability and Quality Assurance Manpower Survey.

OMB Number: None.

Type of Request: New.

Frequency of Report: One-time only.

Type of Respondent: Businesses or other for profit, federal agencies or employees, non-profit institutions.

Number of Respondents: 30.

Responses per Respondent: 1.

Annual Responses: 30.

Hours per Response: 3.

Annual Burden Hours: 90.

Abstract-Need/Uses: In the aftermath of the Challenger accident, NASA is revamping its entire Safety, Reliability, Maintainability and Quality Assurance organizations. One measure of the effectiveness of this effort is a comparison of our current and proposed manning levels with those existing in industry or other government agencies performing similar functions.

January 10, 1989.

Philip D. Waller,

Director, General Management Division.

[FR Doc. 89-2663 Filed 2-3-89; 8:45 am]

BILLING CODE 7510-01-M

[Notice 89-05]

Delegation of Federal Information Processing Standards (FIPS) Waiver Authority

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Notice of Delegation of FIPS Waiver Authority.

SUMMARY: NASA hereby gives notice that the Administrator delegated authority to the Associate Administrator for Management, NASA's senior official designated pursuant to section 3506(b) of Title 44 of the U.S. Code, the authority to waive, under conditions specified by the Secretary of Commerce, previously issued and all subsequent FIPS that are compulsory for Federal agency use in the acquisition and management of information processing resources.

DATE: The delegation was effective January 9, 1989.

ADDRESS: National Aeronautics and Space Administration, Code NT, Washington, DC 20546.

FOR FURTHER INFORMATION CONTACT: Mr. Wallace O. Keene, Assistant Associate Administrator for Information Resources Management, (202) 453-1775.

January 31, 1989.

C. Howard Robins, Jr.,

Associate Administrator for Management.

[FR Doc. 89-2664 Filed 2-3-89; 8:45 am]

BILLING CODE 7510-01-M

NATIONAL FOUNDATION ON THE ARTS AND THE HUMANITIES

Folk Arts Advisory Panel; Establishment

In accordance with provisions of the Federal Advisory Committee Act (Pub. L. 92-463) and General Services Administration regulations issued pursuant thereto (41 CFR Part 101-6), and under the authority of section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959 (a)(4)), notice is hereby given that establishment of the Folk Arts Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of two years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the

Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

The function of this advisory committee cannot be performed by the Arts Endowment, an existing advisory committee or other means, such as public hearing. Neither the agency nor any existing advisory committee possesses sufficient expertise or breadth of representation regarding this field to offer such advice. Other means, such as public hearings, are not suitable for obtaining the necessary advice. Therefore, the establishment and use of this advisory committee is in the public interest.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

Yvonne Sabine,

Director, Council and Panel Operations, National Endowment for the Arts.

February 1, 1989.

[FR Doc. 89-2731 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Opera-Musical Theater Advisory Panel; Establishment

In accordance with provisions of the Federal Advisory Committee Act (Pub. L. 92-463) and General Services Administration regulations issued pursuant thereto (41 CFR Part 101-6), and under the authority of section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959 (a)(4)), notice is hereby given that establishment of the Opera-Musical Theater Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of two years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National

Foundation on the Arts and the Humanities.

The function of this advisory committee cannot be performed by the Arts Endowment, an existing advisory committee or other means, such as public hearing. Neither the agency nor any existing advisory committee possesses sufficient expertise or breadth of representation regarding this field to offer such advice. Other means, such as public hearings, are not suitable for obtaining the necessary advice. Therefore, the establishment and use of this advisory committee is in the public interest.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne Sabine, Director,

Council and Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2732 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Arts in Education Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Arts in Education Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the

Endowment and with the Library of Congress.

February 1, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2733 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Dance Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Dance Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

February 1, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2734 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Design Arts Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Design Arts Advisory Panel has been approved by the Chairman of the National

Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

February, 1989.

Yvonne M. Sabine, Director,

Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2735 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Expansion Arts Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Expansion Arts Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the

Endowment and with the Library of Congress.

February 1, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2736 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Inter-Arts Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Inter-Arts Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

February 1, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2736 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Literature Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Literature Advisory Panel has been approved by the Chairman of the National Endowment

for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2736 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Media Arts Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Media Arts Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the

Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2739 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Museum Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Museum Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2740 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Music Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Music Advisory Panel has been approved by the Chairman of the National Endowment

for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.
[FR Doc. 89-2741 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Visual Arts Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63) notice is hereby given that renewal of the Visual Arts Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council of the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the

Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2742 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Inter-Arts Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Inter-Arts Advisory Panel (Services to the Arts/Artists' Colonies Section) to the National Council on the Arts will be held on February 22-23, 1989, from 9:00 a.m.-6:00 p.m. and on February 24, 1989, from 9:00 a.m.-3:00 p.m. in Room 714 at the Nancy Hanks Center, 1100 Pennsylvania Avenue NW., Washington, DC 20506.

A portion of this meeting will be open to the public on February 24, 1989 from 9:00 a.m.-1:00 p.m. The topics for discussion will be guidelines and policy issues.

The remaining sessions of this meeting on February 22-23, 1989 from 9:00 a.m.-6:00 p.m. and on February 24, 1989 from 1:00 p.m.-3:00 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to subsection (c) (4), (6) and (9)(B) of section 552b of Title 5, United States Code.

If you need special accommodations due to a disability, please contact the Office for Special Constituencies, National Endowment for the Arts, 1100 Pennsylvania Avenue NW., Washington DC 20506, 202/682-5532, TTY 202/682-5496 at least seven (7) days prior to the meeting.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National

Endowment for the Arts, Washington, DC 20506, or call 202/682-5433.

January 31, 1989.

Yvonne M. Sabine,

Director, Council and Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2743 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Media Arts Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Media Arts Advisory Panel (Programming in the Arts Section) to the National Council on the Arts will be held on March 1, 1989, from 9:30 a.m.-6:30 p.m. and March 2, 1989, from 9:30 a.m.-6:00 p.m. in room 716 of the Nancy Hanks Center, 1100 Pennsylvania Avenue, NW., Washington, DC 20506.

This meeting is for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including discussion of information given in confidence to the Agency by grant applicants. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to subsections (c) (4), (6), and (9)(B) of section 552b of Title 5, United States Code.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call (202) 682-5433.

January 31, 1989.

Yvonne M. Sabine,

Director, Council and Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2744 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Music Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Music Advisory Panel (Music Recording Section) to the National Council on the Arts will be held on March 1-2, 1989 from 9:00 a.m.-5:00 p.m. in Room M-14 at the Nancy Hanks Center, 1100 Pennsylvania Avenue NW., Washington, DC 20506.

A portion of this meeting will be open to the public on March 2, 1989 from 3:45 p.m.-5:00 p.m. The topics for discussion will be policy issues.

The remaining sessions of this meeting on March 1, 1989 from 9:00 a.m.-5:00 p.m. and on March 2, 1989 from 9:00 a.m.-3:45 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to subsection (c)(4), (6), and (9)(B) of section 552b of Title 5, United States Code.

If you need special accommodations due to a disability, please contact the Office of Special Constituencies, National Endowment for the Arts, 1100 Pennsylvania Avenue NW., Washington, DC 20506, 202/682-5532, TTY 202/682-5496 at least seven (7) days prior to the meeting.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call 202/682-5433.

January 31, 1989.

Yvonne M. Sabine,

*Director, Council and Panel Operations,
National Endowment for the Arts.*

[FR Doc. 89-2745 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Music Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Music Advisory Panel (Professional Training and Career Development Sections) to the National Council on the Arts will be held on February 22, 1989, from 9:00 a.m.-6:00 p.m. and February 23, 1989, from 9:00 a.m.-5:30 p.m. in Room M-14 at the Nancy Hanks Center, 1100 Pennsylvania Avenue NW., Washington, DC 20506.

A portion of this meeting will be open to the public on February 23, 1989, from 4:00 p.m.-5:30 p.m. The topics for discussion will be guidelines and policy issues.

The remaining sessions of this meeting on February 22, 1989, from 9:00 a.m.-6:00 p.m. and on February 23, 1989, from 9:00 a.m.-4:00 p.m. are for the

purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency by grant applications. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to subsection (c)(4), (6), and (9)(B) of section 552b of Title 5, United States Code.

If you need special accommodations due to a disability, please contact the Office for Special Constituencies, National Endowment for the Arts, 1100 Pennsylvania Avenue NW., Washington, DC 20506, 202/682-5532, TTY 202/682-5496 at least seven (7) days prior to the meeting.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call 202/682-5433.

January 31, 1989.

Yvonne M. Sabine,

*Director, Council and Panel Operations,
National Endowment for the Arts.*

[FR Doc. 89-2746 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Theater Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Theater Advisory Panel (Fellowships for Mimes and Solo Performance Artists Section) to the National Council on the Arts will be held on February 23, 1989, from 9:00 a.m.-6:00 p.m. in Room M-07 at the Nancy Hanks Center, 1100 Pennsylvania Avenue NW., Washington, DC 20506.

A portion of this meeting will be open to the public on February 23, 1989 from 9:00 a.m.-9:30 a.m. The topics for discussion will be policy issues.

The remaining session of this meeting on February 23, 1989, from 9:30 a.m.-6:00 p.m. is for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to

subsection (c)(4), (6), and (9)(B) of section 552b of Title 5, United States Code.

If you need special accommodations due to a disability, please contact the Office for Special Constituencies, National Endowment for the Arts, 1100 Pennsylvania Avenue NW., Washington, DC 20506, 202/682-5532, TTY 202/682-5496 at least seven (7) days prior to the meeting.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call 202/682-5433.

January 31, 1989.

Yvonne M. Sabine,

*Director, Council and Panel Operations,
National Endowment for the Arts.*

[FR Doc. 89-2747 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Theater Advisory Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Theater Advisory Panel (Professional Theater Companies Section) to the National Council on the Arts will be held on March 13-17, 1989, from 9:30 a.m.-10:00 p.m. and March 18, 1989, from 9:30 a.m.-5:00 p.m. in Room M-07 at the Nancy Hanks Center, 1100 Pennsylvania Avenue NW., Washington, DC 20506.

A portion of this meeting will be open to the public on March 13, 1989, from 9:30 a.m.-10:00 a.m. and on March 18, 1989, from 1:00 p.m.-5:00 p.m. The topics for discussion will be guidelines and policy issues.

The remaining sessions of this meeting on March 13, 1989, from 10:00 a.m.-10:00 p.m., March 14-17, 1989, from 9:30 a.m.-10:00 p.m., and March 18, 1989, from 9:30 a.m.-1:00 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the *Federal Register* of February 13, 1980, these sessions will be closed to the public pursuant to subsection (c)(4), (6), and (9)(B) of section 552b of Title 5, United States Code.

If you need special accommodations due to a disability, please contact the Officer for Special Constituencies,

National Endowment for the Arts, 1100 Pennsylvania Avenue NW., Washington, DC 20506, 202/682-5532, TTY 202/682-5496 at least seven (7) days prior to the meeting.

Further information with reference to this meeting can be obtained from Ms. Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call 202/682-5433.

January 31, 1989.

Yvonne M. Sabine,

Director, Council and Panel Operations,
National Endowment for the Arts.

[FR Doc. 89-2748 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Office for Public Partnership Advisory Panel (Formerly Office of Partnership Advisory Panel); Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63), notice is hereby given that renewal of the Office for Public Partnership Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2749 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

Theater Advisory Panel; Renewal

In accordance with the provisions of the Federal Advisory Committee Act (Pub. L. 92-463), section 10(a)(4) of the National Foundation on the Arts and the Humanities Act of 1965, as amended (20 U.S.C. 959(a)(4) and paragraph 9 of Office of Management and Budget Circular A-63), notice is hereby given that renewal of the Theater Advisory Panel has been approved by the Chairman of the National Endowment for the Arts for a period of 2 years until February 6, 1991. The Committee's objectives and scope of activities include the formulation of expert advice and recommendations to the Chairman, National Endowment for the Arts and the National Council on the Arts with respect to: (a) Applications submitted to the National Endowment for the Arts for Federal grant assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, and (b) policies and programs of the National Endowment for the Arts. This Committee shall report to the National Endowment for the Arts, National Foundation on the Arts and the Humanities.

This charter will be filed with the standing Committees of the Senate and the House of Representatives having legislative jurisdiction over the Endowment and with the Library of Congress.

January 31, 1989.

Yvonne M. Sabine,

Director, Office of Council & Panel Operations, National Endowment for the Arts.

[FR Doc. 89-2750 Filed 2-3-89; 8:45 am]

BILLING CODE 7537-01-M

NATIONAL SCIENCE FOUNDATION

Materials Submitted For OMB Review

In accordance with the Paperwork Reduction Act and OMB Guidelines, the National Science Foundation is posting this notice of information collection that will affect the public.

Agency Clearance Officer: Herman G. Fleming, (202) 357-9520.

OMB Desk Officer: ATTN: Jim Houser, Desk Officer, OMB, 722 Jackson Place, Room 3208, NEOB, Washington, DC 20503.

Title: Evaluation of NATO Fellowship Program.

Affected Public: Individuals.
Respondents/Burden Hours: 1104 respondents; 8 minutes per response.

Abstract: In the last 30 years, NSF has awarded 1,104 NATO Postdoctoral Fellowships for study at scientific institutions in countries that are

members of NATO. A base-line study of the program was conducted in 1988 and this survey is needed for program management. NSF, Department of State and NATO are interested in the impact of the program on young PHD's and the development of international collaboration in science.

Dated: February 1, 1989.

Herman G. Fleming,

NSF Clearance Officer.

[FR Doc. 89-2711 Filed 2-3-89; 8:45 am]

BILLING CODE 7555-01-M

[NSF 89-8]

Ethics and Values Studies in Science, Technology and Society

Closing Dates: For Preliminary Proposals: November 1 and May 1. For Formal Proposals: February 1 and August 1 (occurring annually).

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I. Description

A. Overview

Ethics and Values Studies (EVS), in the Studies in Science, Technology and Society (SSTS) Program of the National Science Foundation (NSF), coordinates support for research and related activities examining ethical or value issues of current significance to U.S. science or engineering.

EVS research and educational efforts focus on ethical or value aspects of the interaction between science, technology and society. The purpose is to encourage thoughtful and systematic inquiry into the mutual influences of science or engineering and the moral life of individuals, groups, institutions, communities and nations. EVS supports projects that enhance understanding of the social values and mutual obligations and responsibilities that arise in these interactions.

Research projects often examine aspects of scientific or professional ethics, controversies surrounding impacts of or on sciences and

technologies, or ethical and value issues in development and use of scientific or technical tools for decision making. Cross-cultural research, comparing the U.S. with other nations, is eligible; interdisciplinary work is encouraged.

Educational project make the results of these activities and of prior work available in classrooms or informal educational settings. EVS also considers proposals for national and international conferences, symposia, and research workshops. There must be sponsored or cosponsored by national associations or organizations.

The Studies in Science, Technology and Society program in the Directorate for Biological, Behavioral and Social Sciences coordinates Ethics and Values Studies (EVS). Funds to support EVS projects come from all of the research directorates and the Science and Engineering Education directorate at NSF. Proposals with EVS components can be submitted directly to EVS or to programs in the NSF directorates. To be eligible for EVS funds in those directorates, however, the proposal review process must be coordinated with and involve EVS.

The directorates are interested in encouraging efforts to explore the ethical or value aspects of issues facing scientists and engineers whose educational and research activities they support. EVS has supported studies on ethical and value questions arising from new developments in global change research, and from new developments in biological research; an international conference and campus-based programs on science and social responsibility for graduate and upper-level undergraduate science and engineering students; Delphi-type research projects on ethical norms in computer science, and in publication practices in scientific and technical journals; planning projects on data sharing in the social sciences, and on the effects of communication restrictions on sciences and engineering; an effort to develop a computer tutorial in ethics for engineering students; and research in ethics, values and hazards management.

Several areas are not eligible for consideration. These include studies or educational activities in medicine and society which have a public health or clinical orientation, and projects focused exclusively on ethical issues associated with new military technologies and national defense strategies, or requiring the use of classified materials.

The examples of areas that EVS has supported do not provide a comprehensive listing of eligible topics; potential applicants are encouraged to write or call and discuss their ideas with

SSTS program staff at 202/357-9394; electronic (bitnet) mail address: dirtssts@note.nsf.gov. Summaries describing awards made in previous years are available on request.

Scholars and scientists and engineers who wish to improve their skills in EVS-related areas of the Science, Technology and Society Studies program are eligible to apply to the SSTS Postdoctoral Fellowships and Professional Development Awards program. Request NSF Announcement 88-82 for further information. Support for extraordinary expenses of dissertation research is also available. Please request NSF Announcement 88-35, "Grants for Improving Doctoral Dissertation Research." Faculty members at institutions with limited research opportunities may arrange to work with investigators at other institutions who have or are applying for EVS grants. They should arrange with the grantee institutions to request supplemental funds for these additional costs.

B. EVS Research and Related Activities **EVS Research**

EVS research usually brings several disciplinary perspectives to bear on a theme or question in science, technology and society studies. These perspectives may be achieved by a single investigator, with assistance from several advisors as needed, or in a project involving several investigators with different disciplinary backgrounds.

Studies often integrate perspectives and combine methods from

- Scholarly research and reflection traditionally employed in the humanities disciplines,

- Methods of empirical and statistical study practiced in the social sciences,

- Description and assessment of new developments in scientific and engineering practice and understanding,

- Simulation experiments and other methods that promise to yield insight into the ways science, engineering, technology and morality interact.

Research proposals must identify an important problem and appropriate methods by which to study it. They should describe project goals and their implications for Studies in Science, Technology and Society; the theoretical and methodological foundations for the research; prior work and its results; and the anticipated products from the new work. Proposals involving surveys and interviews are expected to meet the standards of experts in these fields.

EVS will also consider requests for planning grants. Applicants may wish to apply for a first phase of research—for instance, for technical assistance in

project definition and the development of appropriate tools and interpretive plans.

Conferences and Workshops

EVS can help to support national or international conferences, symposia, and research workshops that enable leading scientists, engineers, scholars, policymakers, and representatives of interested groups to develop, evaluate, and share new research findings. Proposals for conference or workshop support should describe the need for the gathering, the proposed date and location, topic and persons who will be involved, prior related meetings, publicity, and expected outcomes. These activities may be convened as special sessions in regular meetings of professional societies. Concomitant support by several Federal agencies or private organizations is encouraged.

Other Activities

Other appropriate activities include projects to collect, compile, and publish background materials that provide a resource for scholars and other interested persons. A wide variety of EVS educational projects, in precollege and undergraduate education as well as in "informal" educational modes, are also eligible for consideration, in conjunction with programs in the Science and Engineering Education directorate. Applicants should contact EVS to discuss their ideas before preparing a written submission.

II. Submission of Proposals

A. Who May Submit

Proposals may be submitted by qualified individual investigators who do not have institutional affiliations or through normal institutional channels in accordance with instructions contained in the brochure *Grants for Research and Education in Science and Engineering* (GRESE, NSF 83-57, rev. 11/87). The Foundation does not generally provide support for research sponsored by foreign institutions.

B. Preliminary Proposals

EVS is a cross-directorate activity at NSF. In order to manage this activity effectively, the Foundation requests that applicants, particularly those who have not previously submitted a proposal to the program, submit preliminary proposals. Comments by Foundation staff will provide a basis for establishing the relevance of a proposal for potential EVS support, and for providing guidance on the appropriateness and structure of a formal submission.

Preliminary proposals are regarded as informal communications between prospective applicants and Foundation staff and need not adhere to any specific format. However, they should include a cover sheet with the applicant's name, mailing address, the title of the proposed project, and its total cost. Preliminary proposals need not be endorsed by the head or authorized representative of the applicant's institution.

Preliminary proposals, not more than five pages long, should identify an area of inquiry, methods and prior work, contributions expected, dissemination and evaluation plans, investigators' credentials and term and budget for the project. They may be submitted at any time; submission by the dates on the cover of this announcement will assure time for replies of use in preparation of formal proposals for the subsequent closing date.

Two copies of each preliminary proposal should be sent directly to Ethics and Values Studies in Science, Technology and Society, Division of Instrumentation and Resources, National Science Foundation, 1800 G Street NW., Room 312, Washington, DC 20550.

C. Formal Proposals

When to Submit

Formal proposals should be submitted by February 1 and August 1. They will be reviewed and the results communicated to applicants within six months of those submission dates. Until a decision is announced, no information can be provided on the probability of support.

Where to Submit

You should submit 20 copies. The original proposal document and 18 copies should be addressed to the Data Support Services Section, National Science Foundation, 1800 G Street, NW., Room 233, Washington, DC 20550. If they are mailed in more than one package, the number of packages should be marked on the outside of each (e.g., 1 of 3). The remaining copy should be sent, for information, directly to EVS, National Science Foundation, Washington, DC 20550. Proposals must be sent prepaid, not collect.

The acknowledgement of receipt of the proposal will contain a registry number. Later communications about the proposal should be addressed to EVS and identified by the NSF registry number.

Contents of the Proposal

Except as may be modified by this announcement, all applicants should

follow the standard NSF guidelines in *GRESE* (NSF 83-57 Rev. 11/87). All proposals should contain the sections outlined in *GRESE* in the order indicated. *GRESE* contains all of the forms needed for formal submissions. It is available from Forms and Publications Unit, Room 232, NSF, 1800 G Street, NW., Washington, DC 20550; telephone 202/357-3619.

Special Notes: EVS project descriptions should be concise—of no more than 15 single spaced or 30 double spaced pages of standard size type. Background information on how the project will contribute to research or education in ethics or values studies in science, technology and society should be summarized. The description should concentrate on the presentation of research assumptions, procedures, and expected outcomes. Interdisciplinary projects should present plans to integrate the various contributions of the collaborators. Cross-cultural studies should identify collaborators in the countries under study. All proposals should describe the audiences for whom results of the projects will be useful and plans to make the results available to them. Outcomes from prior NSF-supported projects that bear on the proposed work should be described in the "Results of Prior Support" section. Biographical sketches should be one or two paragraphs, and vitas should be limited to three pages and list only the five to ten most important publications relevant to judging the investigators' credentials for undertaking the project.

III. Proposal Processing and Evaluation

Proposals will be evaluated in accordance with those criteria outlined in *Grants for Research and Education in Science and Engineering* (GRESE-NSF 83-57 Rev. 11/87). Specific criteria for EVS support include:

- Intellectual excellence and originality;
- Potential to clarify ethical or value aspects of current scientific, engineering, or technical research or its applications;
- Theoretical, methodological or educational contributions to interdisciplinary studies in science, technology, and society;
- Relevance to important issues of public policy or professional practice; and
- National impact and widespread, appropriate dissemination and use of results.

EVS reviewers and panelists will consider whether they would assign the proposal a high, medium or low priority, by asking themselves: Is this an important EVS issue for NSF directorates or programs? Is there

meaningful integration between disciplines associated with the effort? Is it likely to continue or encourage related efforts afterwards? Are the results likely to add significantly to our understanding and improve relevant policy or practice?

IV. The Award

Notification of an award is by letter signed by the Foundation's Grants Officer, addressed to the organization to which the grant is made. Copies are included for the principal investigator and the organization's business office.

V. Grant Administration Highlights

Once an award is made the project director is responsible for complying with NSF requirements for its satisfactory completion. NSF brochure 83-57 Rev. 11/87 *Grants for Research and Education in Science and Engineering* describes these requirements in the section entitled "Grant Administration." Grants are administered in accordance with the applicable terms and conditions (GC-1, Grant General Conditions (10/88) or FDP-II, General Terms and Conditions (10/88), copies of which may be requested from the NSF Forms and Publications Unit previously cited.) More comprehensive information is contained in the *NSF Grant Policy Manual*, usually available in grants administration offices.

The Foundation provides awards for research and educational projects. The Awardee is wholly responsible for the conduct of such projects and for preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

The Foundation welcomes proposals on behalf of all qualified scientists and engineers, and strongly encourages women, minorities and persons with disabilities to compete fully for any of the awards described in this document. Facilitation Awards for Handicapped scientists and engineers (FAH) provide funds on research grants for special assistance or equipment to enable physically disabled scientists or engineers or students to participate in the research. See the FAH announcement (NSF84-62) or contact the SSTS program officers. NSF has TDD (Telephonic Device for the Deaf) capability which enables individuals with hearing impairments to communicate with the Division of Personnel Management for information relating to NSF programs, employment or general information. The number is (202) 357-7492.

In accordance with Federal statutes and regulations and NSF policies, no person on the grounds of race, color, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

This activity is described in the Catalog of Federal Domestic Assistance category 47.051, Biological, Behavioral and Social Sciences.

Rachelle D. Hollander,

Program Director, Ethics and Values Studies in Science, Technology and Society.

[FR Doc. 89-2650 Filed 2-3-89; 8:45 am]

BILLING CODE 7555-01-M

Academic Research Facilities Modernization Program Regional Meetings

AGENCY: National Science Foundation.

ACTION: Notice.

SUMMARY: The National Science Foundation is sponsoring six half-day regional meetings between February 23 and March 9, 1989, in order to provide interested organizations with information on the legislation and the development of the proposed Academic Research Facilities Modernization Program, as well as to hear questions, suggestions, and views. These morning meetings, open to the public, will be held in Chicago, San Diego, Denver, Atlanta, Boston, and Houston.

DATES

Chicago

Date: Thursday, February 23, 1989

Hosted By: University of Illinois-Chicago

Location: Room 2850, University Hall, University of Illinois-Chicago, 601 South Morgan, Chicago, IL 60607

San Diego

Date: Monday, February 27, 1989

Hosted By: San Diego State University Foundation

Location: Council Chambers, Aztec Center, San Diego State University, San Diego, CA 92182

Denver

Date: Thursday, March 2, 1989

Hosted By: Colorado State University/University of Denver

Location: Sheraton Denver Airport Hotel, 3535 Quebec Street, Denver, CO 80207, 303-333-7711 (for group rate, mention "NSF Meeting")

Atlanta

Date: Tuesday, March 7, 1989

Hosted By: Emory University

Location: Woodruff Health Sciences Center Administration Building, Room 120, Emory University, Atlanta, Georgia 30322

Boston

Date: Wednesday, March 8, 1989

Hosted By: Boston College

Location: Conte Function Room, Silvio Conte Forum, Boston College, Chestnut Hill, MA 02167

Houston

Date: Thursday, March 9, 1989

Hosted By: University of Houston

Location: South Ballroom, University Hilton Hotel, University of Houston, Houston, TX 77204

FOR FURTHER INFORMATION CONTACT:

Chicago: Joellyn Migas, Office of the Chancellor, University of Illinois, 312-413-3601

San Diego: W. Timothy Hushen, Director, Research Management, San Diego State University Foundation, 619-594-5731

Denver: Celia Walker, Director, Sponsored Programs Development, Colorado State University, 303-491-6355

Atlanta: Ann R. Stevens, Associate Vice President for Academic Affairs/Research, Emory University, 404-727-2503

Boston: Francis F. Mills, Director of Financing Resources, Boston College, 617-552-3191

Houston: Kathy Bradley, Office of Sponsored Programs, University of Houston, 713-749-3412

SUPPLEMENTARY INFORMATION: As outlined by Pub. L. 100-570, the purpose of the Academic Research Facilities Modernization Act is to assist in modernizing and revitalizing the Nation's research facilities at institutions of higher education, independent nonprofit research institutions and research museums, and consortia thereof, through capital investment. Awards made under the program will be for the repair, renovation, or, in exceptional cases, replacement of obsolete science and engineering facilities primarily devoted to research. No funds are currently available for this program.

William B. Cole, Jr.,

Executive Officer, Research Facilities Office, National Science Foundation.

[FR Doc. 89-2752 Filed 2-3-89; 8:45 am]

BILLING CODE 7555-01-M

NUCLEAR REGULATORY COMMISSION

Documents Containing Reporting or Recordkeeping Requirements: Office of Management and Budget Review

AGENCY: U.S. Nuclear Regulatory Commission (NRC).

ACTION: Notice of the Office of Management and Budget (OMB) review of information collection.

SUMMARY: The U.S. Nuclear Regulatory Commission has recently submitted to the OMB for review the following for the collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

1. Type of submission, new, revision or extension: Extension
2. The title of the information collection: 10 CFR 19.13, "Notifications and Reports to Individuals."
3. The form number if applicable: N/A
4. How often the collection is required: As necessary in order that adequate and timely reports of radiation exposure be made to individuals involved in NRC-licensed activities.
5. Who will be required or asked to report: Licensees authorized to receive, possess, use, or transfer material licensed by the NRC.
6. An estimate of the number of responses: 630,000 annually
7. An estimate of average burden per response: 10 minutes
8. An estimate of the total number of hours needed to complete the requirement of request: 105,005
9. An indication of whether section 3504(h), Pub. L. 9696-511 applies: Not applicable
10. Abstract: Title 10 of the Code of Federal Regulations, § 19.13, requires a report, to individuals receiving radiation exposure as a result of NRC-licensed activities, of an individual's radiation exposure when certain conditions are met. These conditions apply during termination of the worker's employment, at the request of a worker, or when the worker's employer (the NRC licensee) must report radiation exposure information on the worker to the NRC.

ADDRESSES: Copies of the submittals may be inspected or obtained for a fee from the NRC Public Document Room, 2120 L Street NW., Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT:

Comments and questions should be directed to the OMB reviewer: Nicolas B. Garcia, Paperwork Reduction Project (3150-0044), Office of Management and Budget, Washington, DC 20503.

Comments can also be submitted by telephone (202) 395-3084.

NRC Clearance Officer is Brenda Jo. Shelton, (301) 492-8132.

Dated at Bethesda, Maryland, this 1st day of February 1989.

For the Nuclear Regulatory Commission,
Joyce A. Amenta,

Designated Senior Official for Information Resources Management.

[FR Doc. 89-2674 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

Documents Containing Reporting or Recordkeeping Requirements; Office of Management and Budget Review

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of the Office of Management and Budget review of information collection.

SUMMARY: The Nuclear Regulatory Commission (NRC) has recently submitted to the Office of Management and Budget (OMB) for review the following proposal for the collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

1. Type of submission, new, revision, or extension: Extension.
2. The title of the information collection: 10 CFR Part 11—Criteria and Procedures for Determining Eligibility for Access to or Control Over Special Nuclear Material
3. The form number if applicable: Not applicable.
4. How often the collection is required: New applications, certifications, and amendments may be submitted at any time. Renewal applications are submitted every five years.
5. Who will be required or asked to report: Employees (including applicants for employment), contractors and consultants of NRC licensees and contractors whose activities involve access to our control over special nuclear material at either fixed sites or in transportation activities.
6. An estimate of the number of responses: The majority of responses required under Part 11 are submitted using Standard Form 86, Personnel Security Packet, OMB Clearance No. 3206-0007, and NRC Form 237, Request for Access Authorization, OMB Clearance No. 3150-0050. The response and burden information for those forms is reported separately under those clearances. The remaining number of responses under Part 11 is estimated to be 5.

7. An estimate of the total number of hours needed to complete the requirement or request: Approximately 0.25 hours per response, for an industry total of 1.25 hours.
8. An indication of whether section 3504(h), Pub. L. 96-511 applies: Not applicable.
9. Abstract: NRC regulations in 10 CFR Part 11 establish requirements for access to special nuclear material, and the criteria and procedures for resolving questions concerning the eligibility of individuals to receive special nuclear material access authorization. Personal history information which is submitted on applicants for relevant jobs is provided to OPM, which conducts investigations. NRC reviews the results of these investigations and makes determinations of the eligibility of the applicants for access authorization.

Copies of the submittal may be inspected or obtained for a fee from the NRC Public Document Room, 2120 L Street, NW., Washington, DC.

Comments and questions can be directed to the OMB reviewer as follows: Nicolas B. Garcia, Paperwork Reduction Project (3150-0062), Office of Management and Budget, Washington, DC. 20503, Telephone (202) 395-3084. Comments can also be submitted by telephone at (202) 395-3084.

The NRC Clearance Officer is Brenda Jo. Shelton, (301) 492-8132.

Dated at Bethesda, Maryland, this 1st day of February 1989.

For the Nuclear Regulatory Commission,

Joyce A. Amenta,

Designated Senior Official for Information Resources Management.

[FR Doc. 89-2675 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket Nos. 50-282 and 50-306]

Northern States Power Co.; Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating Licenses Nos. DPR-42 and DPR-60, issued to Northern States Power Company (the licensee), for operation of the Prairie Island Nuclear Generating Plant, Units Nos. 1 and 2, located in Goodhue County Minnesota.

Environmental Assessment

Identification of Proposed Action

The proposed amendments would revise the Technical Specifications (TSs)

by revising the surveillance test frequency of the turbine stop valves, the governor valves and the intercept valves associated with the turbine overspeed protection.

The proposed action is in accordance with the licensee's application for amendment dated September 28, 1987, as supplemented October 15, 1987, and June 24, 1988.

The Need for the Proposed Action

The proposed change to the TSs is required to: (1) Reduce the number of thermal and pressure cycles on the plant; (2) reduce the amount of liquid and solid radioactive waste that results in a reduction in personnel exposure; and (3) reduce the potential for inadvertent reactor scrams.

Environmental Impacts of the Proposed Action

The Commission has completed its evaluation of the proposed revision to the TSs. The proposed revision would revise the surveillance test of the turbine stop valves, the governor valves and intercept valves associated with the turbine overspeed protection to an interval not to exceed one year. Since the evaluation demonstrates that the operating parameters are not affected, the proposed change does not increase the probability or consequences of accidents, no changes are being made in the types of any effluents and the change would reduce the amount of effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that this proposed action would result in no significant radiological environmental impact.

With regard to potential nonradiological impacts, the proposed change to the TSs involves systems located within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed amendment.

The Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the **Federal Register** on April 13, 1988 (53 FR 12209). No request for hearing or petition for leave to intervene was filed following his notice.

Alternative to the Proposed Action

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested amendments. This would not reduce environmental impacts of plant operation and would result in reduced operational flexibility.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in the Final Environmental Statements related to the Prairie Island Nuclear Generating Plant dated May 1973.

Agencies and Persons Consulted

The Commission's staff reviewed the licensee's request and did not consult other agencies or persons.

Finding of No Significant Impact

The Commission has determined not to prepare an environmental impact statement for the proposed license amendments. Based upon the foregoing environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for amendment dated September 28, 1987, as supplemented October 15, 1987, and June 24, 1988, which is available for public inspection at the Commission's Public Document Room, Gelman Building, 2120 L Street, NW., Washington, DC, and at the Technology and Science Department, Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, Minnesota 55401.

Dated at Rockville, Maryland, this 31st day of January 1989.

For the Nuclear Regulatory Commission.

Theodore R. Quay,

*Acting Director, Project Directorate III-I,
Division of Reactor Projects—III, IV, V &
Special Projects*

[FR Doc. 89-2677 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket Nos. 50-266 and 50-301]

**Wisconsin Electric Power Co., Point
Beach Nuclear Plant, Units Nos. 1 and
2; Consideration of Issuance of
Amendment to Facility Operating
License and Opportunity for Hearing**

The U.S. Nuclear Regulatory Commission is considering issuance of an amendment to Facility Operating License Nos. DPR-24 and DPR-27,

issued to the Wisconsin Electric Power Company (the licensee), for operation of the Point Beach Nuclear Plant, Unit Nos. 1 and 2, located at the licensee's site in Manitowoc County, Wisconsin.

The proposed amendment would revise the provisions in the Point Beach Nuclear Plant, Unit Nos. 1 and 2, Technical Specifications (TS's) relating to the design and operation of the Point Beach fuel cycle with upgraded core features and at higher core power peaking factors (F_0 and F_H) than are currently permitted by the plant TS.

Specifically, the proposed amendment would incorporate higher core power peaking factors which will allow the use of a low-low leakage loading pattern (LAP) fuel management strategy and will result in decreased neutron fluence to the reactor vessel. This fluence reduction will help address reactor vessel irradiation damage issues such as pressurized thermal shock, low upper shelf material toughness and pressure-temperature restrictions on heatup and cooldown. The higher core power peaking factors will allow additional fluence reduction measures, such as the use of peripheral power suppression assemblies, to be pursued.

In addition to the increase in core power peaking factors, the proposed changes and reanalysis supporting them would permit the use of an upgraded fuel product features package. The upgraded fuel product features include: Removable top nozzles, integral fuel burnable absorbers, axial blankets, extended burnup geometry, and inclusion of a debris filter bottom nozzle. The reactor core description is modified to reflect the proposed changes. Finally, the reanalysis for this proposed amendment supports the removal of the fuel assembly thimble plugging devices and the elimination of the third line segment of the K(z) curve.

Prior to issuance of the proposed license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

By March 8, 1989, the licensees may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for hearing and a petition for leave to intervene. Requests for a hearing and petitions for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. If a request for a hearing or

petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition, and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) The nature of the petitioner's right under the Act to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter, and the bases for each contention set forth with reasonable specificity. Contentions shall be limited to matters within the scope of the amendment under consideration. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

A request for a hearing or a petition for leave to intervene shall be filed with the Secretary of the Commission, United

States Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing the Service Branch, or may be delivered to the Commission's Public Document Room, 2120 L Street, NW., Washington, DC, by the above date. Where petitions are filed during the last ten (10) days of the notice period, it is requested that the petitioner or representative for the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at 1-800-325-6000 (in Missouri 1-800-342-6700). The Western Union operator should be given Datagram Identification Number 3737 and the following message addressed to John N. Hannon: petitioner's name and telephone number; date petition was mailed; plant name; and publication date and page number of this **Federal Register** notice. A copy of the petition should also be sent to the Office of General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to Gerald Charnoff, Esq., Shaw, Pittman, Potts and Trowbridge, 2300 N Street, NW., Washington, DC 20037 attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the presiding Atomic Safety and Licensing Board, that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

If a request for hearing is received, the Commission's staff may issue the amendment after it completes its technical review and prior to the completion of any required hearing if it publishes a further notice for public comment of its proposed finding of no significant hazards consideration in accordance with 10 CFR 50.91 and 50.92.

For further details with respect to this action, see the application for amendment dated August 26, 1988; as supplemented October 28, November 30, and December 23, 1988; and as modified January 17, 1988 (sic), which are available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC 20555, and at the Joseph P. Mann Library, 1516 Sixteenth Street, Two Rivers, Wisconsin.

Dated at Rockville, Maryland, this 31st day of January 1989.

For Nuclear Regulatory Commission.

Timothy G. Colburn,

Acting Director, Division of Reactor Projects—III, IV, V and Special Projects, Office of Nuclear Reactor Regulation.

[FR Doc. 89-2678 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket Nos. 50-250/251; License Nos. DPR-31 and DPR-41]

Florida Power and Light Co., Turkey Point Plant, Unit Nos. 3 and 4; Receipt of Petition for Director's Decision

Notice is hereby given that by Petition dated December 21, 1988, as supplemented on January 13, 1989, Thomas J. Saporito, Jr., has requested that the Executive Director for Operations take action to insure that Florida Power & Light Company (licensee) not be allowed to bring the Turkey Point Plant, Unit 3 or Unit 4 reactors critical until both the licensee and the NRC have completed safety investigations relating to the concerns contained in the report of December 5, 1988, that the Petitioner filed with the NRC Region II office. Mr. Saporito also requested that the operating licenses for units 3 and 4 be immediately suspended and revoked. The Petition alleges that the Turkey Point Station has continuously demonstrated poor maintenance, poor leadership, poor quality improvement, unprofessional operator behavior, and the inability of management to effectively address and resolve these concerns.

The Petitioner asserts as grounds for his request that an Institute of Nuclear Plant Operations (INPO) Report and an Enercon Services Report identified several problems at the Turkey Point facility. The Petitioner also refers to the Nuclear Regulatory Commission's Safety System Functional Inspection Report (50-250/85-32; 50-251/85-32) and NRC Systematic Assessment of Licensee Performance (SALP) Reports which found various problems at the plant, as well as to a number of identified NRC inspection reports and enforcement actions.

The request is being treated pursuant to 10 CFR 2.206 of the Commission's regulations. The Petition has been referred to the Director of the Office of Nuclear Reactor Regulation (NRR). As provided by § 2.206, appropriate action will be taken on this request within a reasonable time. However, a preliminary review of the concerns contained in the Petitioner's report of December 5, 1988, to the NRC Region II office and items contained in the Petition of December 21, 1988, as

supplemented on January 13, 1989, filed with the Office of the Executive Director for Operations under 10 CFR 2.206 does not indicate any immediate necessity to keep the Turkey Point Plant, Units 3 and 4 reactors shut down. The basis for this position is that the Petitioner's concerns do not identify any new information which is not already being addressed by the licensee and the staff, or which we were not already aware of.

A copy of the Petition is available for public inspection at the Commission's Public Document Room at 2120 L Street, NW., Washington, DC 20555, and at the Local Public Document Room for the Turkey Point Plant, Units 3 and 4, located at the Environmental and Urban Affairs Library, Florida International University, Miami, Florida 33199.

Dated at Rockville, Maryland, this 30th day of January, 1989.

For the Nuclear Regulatory Commission.

James H. Sniezek,

Deputy Director, Office of Nuclear Reactor Regulation.

[FR Doc. 89-2679 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

Materials Licensee Interim Financial Assurance Guidance Related to Decommissioning: Availability

The Nuclear Regulatory Commission has published NUREG-1336 entitled "Interim Guidance on the Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30, 40 and 70" and NUREG-1337 entitled, "Interim Guidance on the Standard Review Plan for the Review of Financial Assurance Mechanisms for Decommissioning under Parts 30, 40 and 70."

NUREG-1336 discusses the information to be provided in a materials license application and establishes a uniform format for presenting the information required to meet the decommissioning licensing requirements. NUREG-1337 is prepared for the guidance of Nuclear Regulatory Commission staff reviewers in performing reviews of applications from materials licensees. The document identifies who performs the review, the matters that are reviewed, the basis of the review, how the review is performed, and the conclusions that are sought.

Copies of NUREG-1336 and NUREG-1337 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available from the

National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. A copy is also available for inspection and/or copying for a fee in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.

Dated at Washington, DC, this 25th day of January 1989.

For the Nuclear Regulatory Commission.

Michael J. Bell,

Chief, Division of Low-Level Waste Management and Decommissioning, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 89-2676 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket No. 50-206; License No. DPR-13]

Southern California Edison Co. and San Diego Gas & Electric Co., San Onofre Nuclear Generating Station, Unit No. 1; Exemption

I

Southern California Edison Company and San Diego Gas and Electric Company (the licensees) are the holders of Provisional Operating License No. DPR-13 which authorizes the licensees to operate San Onofre Nuclear Generating Station, Unit No. 1, at power levels up to 1347 megawatts thermal (rated power). The facility is a pressurized water reactor located on the licensees' site in San Diego County, California. The license is subject to all applicable provisions of the rules, regulations and orders of the Nuclear Regulatory Commission.

II

Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors", states that air locks that have been opened during periods when containment integrity is not required by the plant's technical specifications shall be tested at the end of such periods at not less than Pa (calculated peak containment pressure for design-basis events). The licensees have requested a partial exemption from this requirement. The licensees propose to conduct the above test only when maintenance has been conducted that could affect the sealing capability of the air lock door seals. Otherwise, the air lock would be tested at least every six months at Pa (49.4 psig) and also within 72 hours after each closing at 10 psig test pressure.

III

Whenever the plant is in cold shutdown (mode 5) or refueling (mode 6), containment integrity is not required. However, if an air lock is opened during

modes 5 and 6, Paragraph III.D.2(b)(ii) of Appendix J requires that an overall air lock leakage test at not less than Pa be conducted before plant heatup and startup (i.e., entering mode 4). The existing air lock doors are so designed that a full-pressure (i.e., Pa (49.4 psig)) test of an entire air lock can only be performed after strongbacks (structural bracing) have been installed on the inner door. Strongbacks are needed because the pressure exerted on the inner door during the test is in a direction opposite to that of the accident pressure direction. Installing strongbacks, performing the test, and removing the strongbacks requires several hours, during which access through the air lock is prohibited.

When no maintenance has been performed on the air lock that could affect its sealing capability, and the air lock doors have been closed in accordance with the licensees' procedure, and the periodic 6-month test at Pa required by Paragraph III.D.2(b)(i) of Appendix J has been performed on schedule, there is no reason to expect the air lock to leak excessively just because it has been opened in a shutdown or refueling mode. Performing the door seal leak test (10 psig) of Paragraph III.D.2(b)(iii) of Appendix J is sufficient, in this case, to demonstrate the continuing integrity of the air lock.

Accordingly, the staff concludes that the licensees' proposed approach of substituting the seal leakage test of Paragraph III.D.2(b)(iii) for the full-pressure test of Paragraph III.D.2(b)(ii) of Appendix J is acceptable when no maintenance that could affect sealing capability has been performed on an air lock. Whenever maintenance that could affect sealing capability has been performed on an air lock, the requirements of Paragraph III.D.2(b)(ii) of Appendix J must still be met by the licensees.

The purpose of this provision of Appendix J to 10 CFR Part 50 is to ensure that containment leaktight integrity of air lock penetrations is verified after closure so as to maintain containment leakage within the limits specified in the facility Technical Specifications. The proposed alternative test method of air lock door seal leakage is sufficient to achieve this underlying purpose in that it provides adequate assurance of continued leaktight integrity of the air lock. Because of this, the staff has previously granted this same exemption to other plants and intends to revise Appendix J to alleviate the need for further similar exemptions. Consequently, the special circumstances described by 10 CFR 50.12(a)(2)(ii) exist in that application of the regulation in

these particular circumstances is not necessary to achieve the underlying purpose of the rule since the licensee has proposed an acceptable alternative test method that accomplishes the intent of the regulation.

Therefore, a partial exemption from this requirement (10 CFR Part 50, Appendix J, Paragraph III.D.2(b)(ii)) is justified and acceptable, and the licensees' proposal to adopt Surveillance Requirement 4.6.1.3 of Revision 4 of NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," is acceptable (NUREG-0452, Rev. 4, was written to accommodate this type of exemption). Further, the staff finds that, in accordance with 10 CFR 50.12(a)(2), the requested exemption represents special circumstances, as discussed above and is consistent with the intent of Appendix J.

IV

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii) and (iii), are present justifying the exemption.

Therefore, the Commission hereby approves the following exemption to Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR Part 50:

Air locks opened during periods when containment integrity is not required by the Technical Specifications shall be tested at the end of such periods at not less than Pa when maintenance has been performed on the air lock that could affect the air lock sealing capability.

It is further determined that the exemption does not authorize a change in effluent types or total amounts nor an increase in power level and will not have a significant effect on the quality of the human environment. In light of this determination and as reflected in the Environmental Assessment and Findings of No Significant Impact prepared pursuant to 10 CFR 51.2 and 51.30 through 51.32, it is concluded the instant action is insignificant from the standpoint of environmental impact and an environmental impact statement need not be prepared.

For further details with respect to this action, see the application for amendment and exemption request dated March 20, 1987, as supplemented July 22, 1988 and the Commission's Environmental Assessment and Finding

of No Significant Impact dated January 6, 1989 (54 FR 1258). These are available for public inspection at the Commission's Public Document Room 2120 L Street, NW., Washington, DC 20555, and at the General Library, University of California, P.O. Box 19557, Irvine, California 92713.

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 25th day of January, 1989.

For the Nuclear Regulatory Commission.

Gary M. Holahan,

Acting Director, Division of Reactor Projects—III, IV, V and Special Projects, Office of Nuclear Reactor Regulation.

[FR Doc. 89-2680 Filed 2-3-89; 8:45 am]

BILLING CODE 7590-01-M

SMALL BUSINESS ADMINISTRATION

Region IV Advisory Council; Public Meeting; Charlotte, NC

The U.S. Small Business Administration, Region IV Advisory Council, located in the geographical area of North Carolina will hold a public meeting scheduled at 10:00 a.m. on Thursday, February 23, 1989, at the Kenan Center in Chapel Hill, to discuss such matters as may be presented by members, staff of the U.S. Small Business Administration, or others present.

For further information, write or call Gary A. Keel, District Director, U.S. Small Business Administration, 222 South Church Street, Suite 300, Charlotte, North Carolina 28202, 704/371-6561.

Jeannette M. Pauli,

Acting Director, Office of Advisory Councils.
January 31, 1989.

[FR Doc. 89-2728 Filed 2-3-89; 8:45 am]

BILLING CODE 8025-01-M

[License No. 04/04-5246]

Business Capital Investment Company, Inc.; Issuance of a Small Business Investment Company License

On August 10, 1988, a notice was published in the *Federal Register* (53 FR 30158) stating that an application had been filed by Business Capital Investment Company, Inc. (BCIC), with the Small Business Administration (SBA) pursuant to § 107.102 of the Regulations governing small business investment companies (13 CFR 107.102 (1988)) for a

license as a small business investment company.

Interested parties were given until close of business September 10, 1988, to submit their comments. No comments were received.

Notice is hereby given that, pursuant to section 301(d) of the Small Business Investment Act of 1958, as amended, after having considered the application and all other pertinent information, SBA issued License No. 04/04-5246 on December 29, 1988, to BCIC, to operate as a small business investment company.

(Catalog of Federal Domestic Assistance Program No. 59.011, Small Business Investment Companies)

Dated: January 31, 1989.

Robert G. Lineberry,

Deputy Associate Administrator for Investment.

[FR Doc. 89-2729 Filed 2-3-89; 8:45 am]

BILLING CODE 8025-01-M

[License No. 09/09-5380]

Calsafe Capital Corporation; Issuance of a Small Business Investment Company License

On October 13, 1988, a notice was published in the *Federal Register* (53 FR 40162) stating that an application has been filed by Calsafe Capital Corporation, with the Small Business Administration (SBA) pursuant to § 107.102 of the Regulations governing small business investment companies (13 CFR 107.102 (1988)) for a license as a small business investment company.

Interested parties were given until close of business November 12, 1988 to submit their comments to SBA. No comments were received.

Notice is hereby given that, pursuant to section 301(d) of the Small Business Investment Act of 1958, as amended, after having considered the application and all other pertinent information, SBA issued License No. 09/09-5380 on December 28, 1988, to Calsafe Capital Corporation to operate as a small business investment company.

(Catalog of Federal Domestic Assistance Program No. 59.011, Small Business Investment Companies)

Dated: January 26, 1989.

Robert G. Lineberry,

Deputy Associate Administrator for Investment.

[FR Doc. 89-2730 Filed 2-3-89; 8:45 am]

BILLING CODE 8025-01-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Summary Notice No. PE-89-4]

Petition for Exemption; Summary of Petitions Received and Dispositions of Petitions Issued

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of petitions for exemption received and of dispositions of prior petitions.

SUMMARY: Pursuant to FAA's rulemaking provisions governing the application, processing, and disposition of petitions for exemption (14 CFR Part 11), this notice contains a summary of certain petitions seeking relief from specified requirements of the Federal Aviation Regulations (14 CFR Chapter I), dispositions of certain petitions previously received, and corrections. The purpose of this notice is to improve the public's awareness of, and participation in, this aspect of FAA's regulatory activities. Neither publication of this notice nor the inclusion or omission of information in the summary is intended to affect the legal status of any petition or its final disposition.

DATE: Comments on petitions received must identify the petition docket number involved and must be received on or before: February 27, 1989.

ADDRESS: Send comments on any petition in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-10), Petition Docket No. _____, 800 Independence Avenue SW., Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT: The petition, any comments received, and a copy of any final disposition are filed in the assigned regulatory docket and are available for examination in the Rules Docket (AGC-10), Room 915G, FAA Headquarters Building (FOB 10A), 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267-3132.

This notice is published pursuant to paragraphs (c), (e), and (g) of § 11.27 of Part 11 of the Federal Aviation Regulations (14 CFR Part 11).

Issued in Washington, DC, on January 31, 1989.

Denise Donohue Hall,

Manager, Program Management Staff, Office of the Chief Counsel.

Petitions for Exemption

Docket No.: 23921

Petitioner: FlightSafety International

Sections of the FAR Affected: 14 CFR 61.57(a)(1), (c), and (d), 61.58(c)(1) and (d); 61.63(d)(2) and (3); 61.67(d)(2); 61.157(d)(1) and (2) and (e)(1) and (2); Appendix A to Part 61; Appendix H to Part 121

Description of Relief Sought: To amend Exemption No. 4058D to add a subparagraph vi.b.(4), which would be an alternative qualifier for persons eligible to instruct in petitioner's simulator programs. This alternative would be for instructors to have a minimum of 2,500 hours of flight time, 500 of which is pilot-in-command time, in lieu of the flight instructor certificate.

Docket No.: 25286

Petitioner: United States Parachute Association

Sections of the FAR Affected: 14 CFR 91.15(a)(2), 91.47, and 105.43(a)(2)

Description of Relief Sought: To amend Exemption No. 4946 to enable foreign participants to make parachute jumps at the U.S. National Skydiving Championships and at other events conducted by the petitioner and other groups members.

Docket No.: 25733

Petitioner: Helicopters, Unlimited

Regulations Affected: 14 CFR 135.337(a)(5)

Description of Relief Sought: To allow Mr. Bennie F. Harris to perform the duties of Flight Instructor and Check Airman for petitioner using a Class III Medical Certificate.

Docket No.: 25761

Petitioner: American Airlines, Inc.

Sections of the FAR Affected: 14 CFR 121.441(c)(1)(i)

Description of Relief Sought: To allow a 180-day extension of the compliance date for meeting the training requirements for installed protective breathing equipment.

Docket No.: 25775

Petitioner: Petroleum Helicopters, Inc.

Sections of the FAR Affected: 14 CFR 43.3

Description of Relief Sought: To allow appropriately trained flight crewmembers to remove, replace, and service patient oxygen systems that are installed on petitioner's fleet of emergency medical aircraft.

Docket No.: 22441

Petitioner: United Airlines

Sections of the FAR Affected: 14 CFR 121.433(c)(1)(iii), 121.441(a)(i), and 121.441(b)(1); and Part 121, Appendix F

Description of Relief Sought/

Disposition: To extend and amend Exemption No. 3451C that allows petitioner to continue an FAA-

monitored program under which the petitioner's pilots in command, seconds in command, and flight engineers meet annual ground and flight recurrent training and proficiency check requirements. The proposed amendment would add, delete, and extend certain provisions of the exemption, based on petitioner's experience to date. Exemption No. 3451C will terminate on January 31, 1989.

Grant, January 19, 1989, Exemption No. 3451D.

Docket No.: 23392

Petitioner: Beaver Aviation Service, Inc.

Sections of the FAR Affected: 14 CFR 141.91(a)

Description of Relief Sought/

Disposition: To extend Exemption No. 3682, as amended, that allows petitioner to conduct flight training at a satellite base, which is more than 25 nautical miles from its main operations base.

Grant, January 28, 1989, Exemption No. 3682C.

Docket No.: 23752

Petitioner: Mall Airways

Sections of the FAR Affected: 14 CFR 135.225(e)(1)

Description of Relief Sought/

Disposition: To extend Exemption No. 4744 that permits petitioner to take off under instrument flight rules from any Canadian civil airport when the weather visibility minimum at those airports is less than 1-mile visibility, but not less than the minimums prescribed by Transport Canada, which is the Canadian Government agency responsible for establishing such weather visibility minimums. Exemption No. 4744 will expire on January 31, 1989.

Grant, January 17, 1989, Exemption No. 4744A.

Docket No.: 24440

Petitioner: American Flyers

Sections of the FAR Affected: 14 CFR 141.91(a)

Description of Relief Sought/

Disposition: To extend Exemption No. 4419A that allows petitioner to conduct flight training and instruction in its approved courses of training at its satellite base located at Houston, Texas, and to conduct a pilot ground school at its facility in Farmers Branch, Texas.

Grant, January 28, 1989, Exemption No. 4419B.

Docket No.: 24565

Petitioner: Horizon Air

Sections of the FAR Affected: 14 CFR 121.371(a) and 121.378

Description of Relief Sought/

Disposition: To allow petitioner to

continue to contract with Braathens S.A.F.E. or Norway and FFV Maintenance Avio Comp. of Sweden for the inspection, repair, and overhaul of components installed on petitioner's two F-28 aircraft. Grant, January 17, 1989, Exemption No. 5013.

[FR Doc. 89-2630 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-13-M

[File No. PFR-1]

Propfan Type Certification Requirements

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of availability and request for comments.

SUMMARY: The draft report, Propfan Type Certification Requirements, provides the results of a FAA study of propfan technology and the certification and safety issues associated with use of such equipment in the air transportation industry. The draft report contains recommendations for certification standards to be applied in type certification programs for propfan powered airplanes and their propulsion systems.

DATE: Comments must identify the draft report file number PFR-1 and be received on or before May 8, 1989.

ADDRESS: Send all comments on the draft report to:

Federal Aviation Administration,

Aircraft Certification Service, Aircraft Engineering Division, Policy and Procedures Branch, AIR-110, 800 Independence Avenue, SW., Washington, DC 20591.

Or Deliver Comments To: Federal Aviation Administration, Policy and Procedures Branch, Room 335, 800 Independence Avenue SW., Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT:

Mr. Bruce Kaplan, Federal Aviation Administration, Aircraft Certification Service, Aircraft Engineering Division, Policy and Procedures Branch, AIR-110, 800 Independence Avenue SW., Washington, DC 20591, Telephone: (202) 267-9588.

Comments received on the draft report may be examined, before and after the comment closing date, in Room 335, FAA Headquarters Building (FOB-10A), 800 Independence Avenue SW., Washington, DC 20591, weekdays, except Federal holidays, between 8:30 a.m. and 4:30 p.m.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to comment on the contents of the draft report by submitting such written data, views, or arguments as they desire to the above specified address. All communications received by the FAA prior to the closing date for comments as specified above will be considered before the final version of the report is issued. The recommendations contained in this draft report may be modified in light of the comments received. A public meeting to further discuss outstanding issues may also be held if the comments received indicate a need for this.

Background

In response to the national need to reduce fuel consumption because of the widespread fuel shortages of the mid-1970's, programs were initiated aimed at achieving greater fuel efficiency in aircraft airframe and engine technology. One result of this effort was the development of a new propulsion concept, commonly referred to as propfans, characterized by propulsor blades with highly swept blade planforms and very thin airfoil sections. The rapid advancement of this propfan technology made it apparent that manufacturers would soon be approaching the FAA with requests for certification of this equipment. The FAA, therefore, formed a study team in 1986 to gather all available information about the various propfan designs being proposed or under development and to utilize this knowledge in an assessment of the adequacy of the current airworthiness standards regarding type certification of this new equipment.

The team met with manufacturers and

with other airworthiness authorities to discuss the new technology and to share views on possible certification and safety issues. The information gathered and recommendations for certification of this equipment are included in this draft technical report which is being offered to the public for comment. Since the information contained in this report is intended to serve as advisory material from which proposed certification standards can be developed by the aircraft certification organization, the technical report format was chosen as the medium for public dissemination of the team's findings and recommendations.

How to Obtain Copies

A copy of the draft report "Propfan Type Certification Requirements" may be obtained by contacting the person under "FOR FURTHER INFORMATION CONTACT."

Issued in Washington, DC, on January 31, 1989.

John K. McGrath,

Acting Manager, Aircraft Engineering Division, Aircraft Certification Service.
[FR Doc. 89-2629 Filed 2-3-89; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF THE TREASURY**Public Information Collection Requirements Submitted to OMB for Review**

Dated: January 31, 1989.

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Pub. L. 96-511. Copies of the

submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 2224, 15th and Pennsylvania Avenue, NW., Washington, DC 20220.

Internal Revenue Service

OMB Number: 1545-0271

Form Number: 500-5-56

Type of Review: Extension

Title: Letter to Follow Up On Undelivered Orders

Description: This letter is sent by procurement personnel to vendors to follow up on undelivered items ordered by government purchase orders.

Respondents: Businesses or other for-profit, Small businesses or organizations

Estimated Number of Respondents: 700

Estimated Burden Hours Per Response: 30 minutes

Frequency of Response: On occasion

Estimated Total Reporting Burden: 350 hours

Clearance Officer: Garrick Shear (202) 535-4297, Internal Revenue Service, Room 5571, 1111 Constitution Avenue, NW., Washington, DC 20224.

OMB Reviewer: Milo Sunderhauf (202) 395-6880, Office of Management and Budget, Room 3001, New Executive Office Building, Washington, DC 20503.

Lois K. Holland,

Departmental Reports Management Officer.

[FR Doc. 89-2697 Filed 2-3-89; 8:45 am]

BILLING CODE 4810-25-M

Sunshine Act Meetings

Federal Register

Vol. 54, No. 23

Monday, February 6, 1989

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

COMMODITY FUTURES TRADING COMMISSION

TIME AND DATE: 10:00 a.m., Tuesday, February 28, 1989.

PLACE: 2033 K St., NW., Washington, DC, 5th Floor Hearing Room.

STATUS: Open.

MATTERS TO BE CONSIDERED: Third Quarter Program Objectives, FY 89.

CONTACT PERSON FOR MORE INFORMATION: Jean A. Webb, 254-6314.

Jean A. Webb,

Secretary of the Commission.

[FR Doc. 89-2850 Filed 2-2-89; 2:53 pm]

BILLING CODE 6351-01-M

COMMODITY FUTURES TRADING COMMISSION

TIME AND DATE: 10:30 a.m., Tuesday, February 28, 1989.

PLACE: 2033 K St., N.W., Washington, D.C. 8th Floor Hearing Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Enforcement Objectives.

CONTACT PERSON FOR MORE

INFORMATION: Jean A. Webb, 254-6314.

Jean A. Webb,

Secretary of the Commission.

[FR Doc. 89-2851 Filed 2-2-89; 2:53 pm]

BILLING CODE 6351-01-M

FEDERAL HOME LOAN MORTGAGE CORPORATION

DATE AND TIME: Monday, February 6, 1989, 1:00 p.m.

PLACE: 1776 G Street NW., Board Room, Third Floor, Washington, DC 20006.

STATUS: Closed.

CONTACT PERSON FOR MORE

INFORMATION: Keith Earley, 1759 Business Center Drive, P.O. Box 4115, Reston, Virginia 22090, (703) 759-8414.

MATTERS TO BE CONSIDERED:

Closed: Minutes of the December 19, 1988

Board of Directors' Meeting

Closed: President's Report

Closed: Corporate Plan for 1989

Closed: Dividend Policy for 1989

Closed: Financial Report

Date sent to Federal Register: February 1, 1989.

Maud Mater,

Secretary.

[FR Doc. 89-2776 Filed 2-2-89; 2:52 pm]

BILLING CODE 6719-01-M

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

February 1, 1989

TIME AND DATE: 10:00 a.m., Thursday, February 2, 1989.

PLACE: Room 600, 1730 K Street NW., Washington, DC.

STATUS: Open.

MATTERS TO BE CONSIDERED: In addition to the previously announced item, the Commission will consider and act upon the following:

2. *Ernie L. Bruno v. Cyprus Plateau Mining Corporation*, Docket No. WEST 88-157-D.

It was determined by a unanimous vote of Commissioners that this item be included on the agenda and that no earlier announcement of the addition was possible.

CONTACT PERSON FOR MORE INFO: Jean Ellen (202) 653-5629 / (202) 566-2673 for TDD Relay.

Jean H. Ellen,

Agenda Clerk.

[FR Doc. 89-2873 Filed 2-2-89; 4:02 pm]

BILLING CODE 6735-01-M

Corrections

Federal Register

Vol. 54, No. 23

Monday, February 6, 1989

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents and volumes of the Code of Federal Regulations. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket Nos. CP89-691-000, et al]

Northern Natural Gas Co., et al; Natural Gas Certificate Filings

Correction

In notice document 89-2229 beginning on page 4896 in the issue of Tuesday, January 31, 1989, make the following correction:

On page 4896, in the third column, in filing 2, the docket number should read "CP89-690-000".

BILLING CODE 1505-01-D

NUCLEAR REGULATORY COMMISSION

[Docket No. 50-424]

Georgia Power Co. et al; Consideration of Issuance of Amendment to Facility Operating License and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing

Correction

In notice document 88-29619 beginning on page 52266 in the issue of Tuesday, December 27, 1988, make the following corrections:

1. On page 52667, in the table, in the first column, "3/4" should read "3/4" for the last 13 entries.

2. On the same page, in the table, in the 2nd column, in the 18th line from the bottom, "Under the voltage/under frequency" should read "Under voltage/under frequency".

3. On the same page, in the 2nd column, in the 12th line from the bottom, "and 4." should read "and 4.e".

4. On page 52269, in the table, in the second column, in the sixth line, "4.6.1.6.b.2" should read "4.6.1.6.1.b.2".

5. On the same page, in the table, in the 2nd column, in the 28th line, "125" should read "135".

6. On the same page, in the table, in the 2nd column, in the 30th line, between the opening and closing

quotation marks following "footnote", insert an asterisk..

7. On the same page, in the table, in the 2nd column, in the 35th line, after "footnote" insert an asterisk.

8. On the same page, in the table, in the 2nd column, in the 37th line, after the first "footnote" insert an asterisk.

9. On the same page, in the table, in the 2nd column, in the 22nd line from the bottom, "4/4/-1." should read "4.1-1".

10. On the same page, in the table, in the 2nd column, the 20th line from the bottom should read "Correct the spelling of 'omitted' in notation '*'".

11. On the same page, in the table, in the 2nd column, in the 19th line from the bottom, "3.05" should read "3.0.5".

12. On the same page, in the table, in the 2nd column, the 12th line from the bottom should read "Change 'F_{ΔH}' to F_{ΔH} in 3/4.1.3.2".

13. On the same page, in the table, in the 2nd column, in the 11th line from the bottom, "FN*H" should read "F_{ΔH}".

14. On page 52271, in the second column, in the heading following the third complete paragraph, "Value" should read "Valve".

15. On page 52272, in the first column, under "Fuel Handling Building Heater Requirement (Item 27)", in the first complete paragraph, in the second line, "Unit 12 and 2" should read "Unit 1 and 2".

BILLING CODE 1505-01-D

Federal Register

Monday
February 6, 1989

Part II

Environmental Protection Agency

40 CFR Parts 257 and 503
Standards for the Disposal of Sewage
Sludge; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 257 and 503

[FRL-3479-9]

Standards for the Disposal of Sewage Sludge

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: Today, under authority of sections 405 (d) and (e) of the Clean Water Act (CWA), as amended (33 U.S.C.A. 1251, *et seq.*), the Environmental Protection Agency (EPA) is proposing regulations to protect public health and the environment from any reasonably anticipated adverse effects of certain pollutants which may be present in sewage sludge. The regulation establishes requirements for the final use and disposal of sewage sludge when the sewage sludge is applied to the land, distributed and marketed, placed in monofills (sludge-only landfills) or on surface disposal sites, or incinerated. The standards for each end use and disposal method consist of either limits on the pollutant concentrations in sewage sludge or equations for calculating these pollutant limits; management practices; and other requirements that prescribe the level of management control that treatment works, users, and disposers must exercise over sewage sludge. EPA also is proposing monitoring, record keeping, and reporting requirements.

Today's standards apply to publicly and privately owned treatment works that generate or treat domestic sewage sludge, as well as to any person who uses or disposes of sewage sludge from such treatment works. Consistent with the statute, the proposed rule requires compliance within 12 months of the date the rule is promulgated, or within 24 months if the regulation requires construction of new pollution control facilities. Qualified publicly owned treatment works (POTWs) that comply with the requirements in 40 CFR Part 403 may be eligible to revise categorical pretreatment standards applicable to industrial users in order to allow additional discharges into POTWs of the pollutants included in this rule.

The proposed standards do not apply to sewage sludge treatment processes that precede final use or disposal or to domestic sewage that is treated along with industrial waste and wastewater by privately owned industrial facilities. In addition, standards are not established in this Part for sewage sludge that is determined to be

hazardous using the procedures in 40 CFR Part 261, Appendix II, or to sewage sludge found to contain greater than 50 parts per million (ppm) of polychlorinated biphenyls (PCBs). Requirements in 40 CFR Parts 261-268 apply to sewage sludge determined to be hazardous, and requirements in 40 CFR Part 761 apply to sewage sludge containing greater than 50 ppm of PCBs. Compliance with these requirements will constitute compliance with section 405 of the CWA.

Included in this Notice are conforming amendments to 40 CFR Part 257. The conforming amendments remove the applicability of Part 257 for sewage sludge disposed of by those practices for which EPA is proposing standards today.

DATE: EPA will accept public comments on this proposed rule until August 7, 1989.

EPA will conduct two 2-day workshops to discuss the technical bases of proposed rule and will hold several public hearings to take oral comments on the proposal. These workshops and hearings will be scheduled in the near future. Information on the workshops and hearings will be published in the "Federal Register."

Information on the workshops and hearings may be obtained by writing or calling Mark Morris, Sludge Regulation and Management Branch (WH-585), 401 M Street, SW., Washington, DC 20460, (202) 475-7301.

ADDRESSES: Comments on this proposed rule should be sent to: William R. Diamond, Criteria and Standards Division (WH-585), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

The public docket is located in the Public Information Reference Unit, Room 2904, Waterside Mall, 401 M Street, SW., Washington, DC. The docket is available for viewing from 8:00 a.m. to 4:00 p.m., Monday through Friday, excluding legal holidays. The EPA public information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Further information on the proposed rule may be obtained by writing or calling Dr. Alan Rubin, Sludge Regulation and Management Branch (WH-585), 401 M Street, SW., Washington, DC, 20460, (202) 475-7301.

Information on the availability of single copies of the proposed rule, technical support documents, and copies of the analyses and models discussed in today's proposal is provided in Part XIII of **SUPPLEMENTARY INFORMATION.**

SUPPLEMENTARY INFORMATION: The preamble to this Notice is organized as follows:

Overview

PART I: Generation, Use and Disposal of Sewage Sludge

PART II: Federal and State Requirements

PART III: Selection of Pollutants for Regulation

PART IV: Exposure Assessment Models

PART V: Human Health Criteria

PART VI: Environmental Criteria

PART VII: Aggregate Effects Assessment

PART VIII: Alternative Regulatory

Approaches

PART IX: Description of 40 CFR Part 503

Subpart A: General Provisions

Subpart B: Land Application

Subpart C: Distribution and Marketing

Subpart D: Monofills

Subpart E: Surface Disposal Sites

Subpart F: Pathogen and Vector Attraction

Reduction Requirements

Subpart G: Incineration

Subpart H: Removal Credits

Subpart I: Monitoring, Record Keeping, and

Reports

PART X: Implementation of 40 CFR Part

503

PART XI: Benefits and Costs of the

Proposed Rule

PART XII: Summary of the Issues and Data

Requested

PART XIII: Availability of Technical

Information on the Proposal

PART XIV: Changes in 40 CFR Part 257

List of Subjects in 40 CFR Parts 257 and 503

OVERVIEW

The Clean Water Act (CWA) requires municipalities receiving wastewater from households, industrial facilities, and other sources to treat this wastewater. Treatment produces an effluent that is discharged and sewage sludge. The sewage sludge usually contains more than 90 percent water, in addition to solids and dissolved substances. The chemical and biological constituents of the sludge depend upon the composition of the wastewater entering the treatment facility and the subsequent treatment processes. Typically, these constituents may include the following: volatile organic solids; nutrients; disease-causing pathogenic organisms (e.g., bacteria, viruses, etc.); heavy metals and inorganic ions; and toxic organic chemicals from industrial wastes, household chemicals, and pesticides.

The CWA of 1977 amended section 405 by adding subsection (d), which directed EPA to develop regulations containing guidelines for the utilization and disposal of sewage sludge. The regulations were to identify uses for sewage sludge, including disposal, and identify factors to be taken into account in the use or disposal of sewage sludge. In addition, the regulations were to

specify concentrations of pollutants which would interfere with sewage sludge use or disposal. The Water Quality Act of 1987 amended section 405(d) by adding a formal requirement that, on the basis of available information, EPA identify the toxic pollutants in sewage sludge that may adversely affect public health or the environment and, in regulations, specify management practices and establish numerical limits for each of the pollutants. The Act requires that the standards be adequate to protect public health and the environment from any reasonably anticipated adverse effects of the pollutants.

Regulatory Determinations

Except for establishing a schedule for promulgation of the regulations, Congress provided little other guidance for the Agency to carry out its broad mandate to protect public health and the environment. Unlike the technology-based requirements of other provisions of the CWA under which the Agency determines appropriate pollutant discharge standards based on the pollutant reduction capabilities of equipment, the directive of section 405(d) requires the Agency to address a much broader range of issues. To develop standards that adequately protect public health and the environment, the Agency must examine and integrate a substantial volume of information and make determinations in a number of different areas. Today's proposal reflects the Agency's determinations on the following issues.

Scope of the Regulation. Different types of sewage sludge are generated and there are different ways of using or disposing of it. Given the different types of sludge that are generated, which types should the Agency regulate? Of the methods used by communities to dispose of their sewage sludge, which types and methods should the Agency regulate?

Pollutant Coverage. On what basis should the Agency select the pollutants (metals, pesticides, organic contaminants, pathogenic organisms) which are regulated in today's proposal?

Pathways of Exposure. What media (air, water, soil) transport the pollutants in sewage sludge into and through the environment?

Target Organisms. What individuals or groups of individuals, plants, or animals are most likely to be affected by the pollutants in sewage sludge?

Models. How will the Agency simulate the movement of the pollutants in sewage sludge into and through the various environmental media to the target organisms?

Type of Risks. What are the potential human health and environmental risks posed by the use or disposal of sewage sludge (e.g., breathing air around a sewage sludge incinerator, drinking water from a well near a monofill, eating food grown on soil to which sludge has been applied, plants growing on sludge-enriched soil, etc.) that the Agency should examine?

Effect Levels. At what concentration does a pollutant adversely affect human health and the environment?

Effects. What are the effects the standards should be designed to prevent (e.g., increased risk of developing cancer or hypertension, phytotoxicity, animal toxicity, etc.)?

Background Pollutant Levels. What are the sources of pollutant exposure other than sludge (e.g., lead from gasoline or from water supply pipes, etc.)?

Acceptable Level Of Risk. What level of risk adequately protects human health and the environment?

Uncertainties. How should the Agency measure and account for the unavoidable uncertainties in its analyses (e.g., use conservative assumptions, add a margin of safety)?

Type Of Effects To Be Evaluated. Should the Agency evaluate the human health and environmental effects on the most exposed target organisms (individual, plant, or animal) or should the Agency also examine the incidence of adverse effects on the total population associated with sewage sludge use or disposal?

Pollutant Limits. Should a single pollutant limit be established for all use or disposal practices or should a separate pollutant limit be established for each use or disposal method?

Form Of The Pollutant Limits. How should the pollutant limits be expressed (e.g., a limitation on pollutant concentrations in sewage sludge, a limitation on pollutant loading rates to the land, a limitation on pollutant emission rates, etc.)?

Regulatory Responsibility. Who should be responsible for meeting the requirements in the rule (end user, treatment work)?

Impacts. Who is affected by the rule? What are the benefits and costs of the proposal?

Since 1984, the Agency has been conducting an extensive information-gathering and analytical program to support the development of today's proposal. Subsequent to the 1987 amendments to the CWA, the Agency redoubled its efforts. This preamble, the technical support documents, and related analyses of the proposal's impact are the product of that effort and

explain the basis for the determinations the Agency has made in establishing these standards.

Fundamental Regulatory Principles

The fundamental assumptions underlying today's proposal are discussed below.

Expand the Standards Later

The scope of the Part 503 standards is necessarily constrained by the adequacy of information on sewage sludge pollutants and means of use or disposal. However, rather than wait for more complete information in order to propose all-inclusive regulations, the Agency is proposing standards for those pollutants and use or disposal methods for which there was sufficient information. The Agency will expand and refine these standards in future rulemakings. Section 405 specifically contemplates that the Agency will issue these standards in stages and revise them periodically.

To remedy existing information gaps, the Agency is conducting a National Sewage Sludge Survey which will gather, among other things, additional information on the pollutants in sewage sludge. Furthermore, in cooperation with other Agency offices, EPA is gathering data on the movement of certain pollutants into and through the environment (e.g., dioxins and pathogenic organisms), refining and expanding its modeling capability for specific pollutants or disposal methods (e.g., pathogenic organisms, sewage sludge surface disposal sites), supplementing its information on disposal methods (e.g., sewage sludge incinerators, municipal solid waste incinerators co-firing sewage sludge, sewage sludge surface disposal sites), and identifying the characteristics of industrial sludge with a domestic sewage component.

In addition during the comment period, EPA will have experts from both inside and outside the Agency review the scientific and technical bases of the proposal. This review may include the Agency's Science Advisory Board, the Cooperative State Research Service, Regional Research Technical Committee (sometimes called the W-17C Committee), representatives of academia, and/or other scientific/technical bodies with expertise in the areas covered by this proposed rule. With the additional data and the scientific and technical review of the proposal, the Agency should be able to expand and refine the standards.

Coordinate With Other Programs

The use and disposal of sewage sludge affect air, soil, and water. In preparing this proposal, the Agency carefully examined the requirements of other media programs and media-specific statutes. Where possible, for consistency, the Agency used the tools and standards developed under these other programs. For example, the air models used in developing the limits for the incineration of sewage sludge are the models used under EPA's air program. Thus, the pollutant limits for the incineration of beryllium and mercury are based on the National Emission Standards for Hazardous Pollutants (NESHAPs). The limit for the incineration of lead is based on the National Ambient Air Quality Standard (NAAQS) for lead. This principle is followed throughout the proposal. Therefore, when the pollutant limits are designed to protect ground water, the Agency used the drinking water standards (maximum contaminant levels—MCLs), where available. When protecting surface water, the Agency used the water quality criterion developed for individual pollutants.

In some cases, regulatory standards are undergoing revision. If the Agency has proposed an alternative standard, as in the case of the drinking water standard for lead, the preamble describes and shows the effect of the new standard on the pollutant limit for a use or disposal practice. If the Agency's analyses have not reached a point at which a regulatory option has been selected, the preamble notes that when a new standard is promulgated, the numerical limit for a disposal practice will be revised.

Control Sewage Sludge Quality

Section 405(d) of the CWA directs the Agency to control the quality of sewage sludge by establishing pollutant limits for a use or disposal method. Preventing the contamination of sewage sludge before it is used or disposed of is more equitable than requiring others to contain the contaminated sludge or to deal with the consequences. Only when it is not feasible for the Agency to set pollutant limits does section 405(d)(3) authorize management practices to contain the pollutants—the approach taken by the Agency in the criteria it has proposed for solid waste disposal in municipal solid waste landfills (MSWLFs) (53 FR 33314, August 30, 1988).

By setting limits on sludge quality, the regulation creates incentives for treatment works to generate clean sludge. Treatment works with sewage

sludge that does not meet the standards must clean up the influent (e.g., strengthen their pretreatment programs), improve their treatment of sewage sludge (e.g., reduce the densities of pathogenic organisms), or select another use or disposal method.

Emphasize Waste Reduction and the Beneficial Reuse of Sewage Sludge

Achievement of desired national levels of environmental quality depend on the reduction and elimination of the substantial volumes of waste and wastewater generated at home and at work. Without a significant reduction in these volumes (e.g., by home composting food scraps rather than putting them down a garbage disposal), and a corresponding reduction in the residual from treatment (sludge) which must then be either used or disposed of, attainment of these goals is severely hampered.

Closely linked to the Agency's objective of reducing the volume of waste generated, is EPA's policy of strongly supporting the beneficial reuse of sewage sludge. Improving the productivity of our land with the soil conditioning properties and nutrient content of sewage sludge has human health and environmental advantages beyond those that are directly associated with applying sewage sludge to the land. Secondary or related benefits of reusing sewage sludge result from a reduction in the adverse human health effects of incineration, a decreased dependence on chemical fertilizers, a reduction in the emissions associated with incineration that contribute to the "greenhouse effect" and a reduction in fuel or energy costs associated with incineration. Prior to finalizing the rule, the Agency will carefully consider, and place heavy emphasis on, those comments and approaches that support the Agency's policy of beneficial reuse.

Preserve a Local Community's Choice of a Disposal Method

Although the Agency's preference is for local communities to beneficially use their sewage sludge, EPA's responsibility is to set standards, for each method, that are adequate to protect public health and the environment. While the choice of a use or disposal method is reserved by section 405(e) of the CWA to local communities, protection of public health and the environment, where risks are significant, dictate stringent pollutant limits. EPA believes communities, in certain cases, will be unlikely to meet the limits the Agency has proposed. For example, communities are unlikely to meet the limits that would allow them to

place sewage sludge in a monofill over Class I ground water (i.e., an irreplaceable source of drinking water).

Base the Rule on Minimizing Risks to Individuals and to the Population as a Whole

The Agency evaluated the effect of a pollutant on the most exposed individual, plant, or animal (MEI) and on the population as a whole. Regulatory options were examined that would have resulted in a rule based on aggregate incidence analyses only (the effect on the whole population), on MEI analyses only, and a rule based on a combination of aggregate and MEI analyses. Today's proposal uses a combination of aggregate and MEI analyses.

For use or disposal methods that do not result in high levels of pollutant exposure to the MEI and that do not result in significant incidence of disease (e.g., applying sewage sludge to non-agricultural lands, placing sewage sludge in surface disposal sites), the pollutant limits are based on current sludge quality (i.e., the 98th-percentile pollutant concentration shown in "Fate of Priority Pollutants in Publicly Owned Treatment Works"—the "40 City Study"—Reference number 36). However, where current sludge quality and disposal methods result in high levels of pollutant exposure to an individual or to the population as a whole, or where there are significant scientific uncertainties as to the effect of a pollutant in a use or disposal practice, pollutant limits are based on models designed to protect the MEI.

Propose Reasonable Standards

Section 405(d)(2)(D) of the CWA requires the Agency to establish standards that are adequate to protect human health and the environment from any reasonably anticipated adverse effects of each pollutant. The Agency examined the effect of long-term pollutant exposure and circumstances that could: (1) Increase the toxicity and potency of a pollutant in the environment; (2) speed the movement of a pollutant into and through the environment; and (3) intensify the adverse effect that the pollutant may have on human health or the environment.

This approach is used throughout the rule to take account of potential data inadequacies, but does not protect against every conceivable combination of adverse conditions. In taking such an approach, the Agency recognizes that some risks may not have been fully evaluated and that some risks may remain after regulation. For example, the

Agency used the average background value of metals in agricultural soils for applying sewage sludge to agricultural lands and assumed that users of sewage sludge would follow simple label instructions. EPA expects that few, if any, individuals will receive higher doses of a pollutant than the doses used to establish the standards. Therefore, the Agency has made the determination that the proposal meets the statutory directive that the standards protect against reasonably anticipated adverse effects of the pollutants.

Propose an Implementable Rule

The proposal balances the flexibility associated with site-specific analyses against the simplicity of national numerical limits. A rule that allows exceptions for every conceivable contingency would prove difficult to understand. Moreover, implementation of such a rule would require an unwarranted commitment of the Agency's limited resources. Therefore, exceptions to national pollutant limits are few, based on a minimum number of site-specific conditions that would make a significant difference in the pollutant limits.

Section 405(e) of the CWA requires treatment works generating or treating sewage sludge, as well as persons using or disposing of sewage sludge, to comply with the technical standards. Realistically, the Agency can not issue permits to every user of sewage sludge. Therefore, primary responsibility is placed on treatment works for ensuring that sewage sludge meets the requirements of the rule. Greater flexibility is provided in the standards if the treatment works control the use or disposal practice or when, through agreements or other contractual mechanisms, the treatment works can effectively control the disposal. When this is impractical (e.g., when sewage sludge products are sold or given away to the general public), sewage sludge must meet higher standards of quality. However, the limits were not designed to protect against every conceivable misuse of the product that is distributed and marketed. Rather, the rule assumes that simple instructions on the proper use of the product will be followed.

Solicit Comment on a Wide Range of Issues

In addition to explaining the proposal, the preamble discusses alternative approaches that have been used by other programs at the Agency regulating pollutants in the various media and that were considered during the development of the rule. The Agency is soliciting public comment on the fundamental

principles of the rule, the carcinogenic risk levels proposed, other human health and environmental criteria that could be used in establishing the numerical limits, changes that may occur because of other Agency actions (e.g., changes in the MCL and air standards for lead), the models, the MEI and aggregate risk analyses, the anticipated benefits and costs of the rule, and the data deficiencies. A separate part of the preamble integrates and summarizes the issues and questions raised throughout the preamble.

Some have characterized the preamble as an Advanced Notice of Proposed Rule Making (ANPRM). While the preamble has characteristics similar to an ANPRM, the Notice is a fully developed proposal. Unlike an ANPRM, this Notice solicits comment on specific numerical limits and provisions of the rule. EPA prepared the broadest possible notice to solicit wide public participation on a comprehensive range of issues in the decision-making process and to identify areas in the proposal where the Agency should make changes or repropose, if warranted, based on public comment and the data gathering initiatives underway.

Summary of the Proposed Rule

Today's proposal includes standards for the final use or disposal of sewage sludge when the sewage sludge is applied to agricultural and non-agricultural land, distributed and marketed, placed in monofills or surface disposal sites, or incinerated. Standards are not proposed for sewage sludge that is disposed with solid waste in MSWLFs. The disposal of sewage sludge in MSWLFs will be regulated under 40 CFR Part 258 (see 53 FR 33314, August 30, 1988). In addition, the rule does not cover sewage sludge that is incinerated with solid waste or disposed of in deepwell wet air oxidation systems.

The rule applies to sewage sludge that is generated or treated by publicly owned and privately owned treatment works treating domestic sewage and municipal wastewater. The rule does not apply to domestic sewage that is treated along with industrial wastewater by privately owned facilities. Sewage sludge that is determined to be hazardous under procedures in Appendix II of 40 CFR Part 261 is not included in this proposal, but must be disposed of in compliance with the hazardous waste regulations in 40 CFR Parts 261 through 268. Compliance with those regulations will constitute compliance with Section 405. Also, sewage sludge that is found to contain 50 ppm or more of PCBs is excluded from this proposal. Sewage sludge with

50 ppm of PCBs must be disposed of in accordance with the requirements established in 40 CFR Part 761.

Finally, the rule does not cover the ocean disposal of sewage sludge which is regulated by the Marine Protection, Research, and Sanctuaries Act (MPRSA). The Ocean Dumping Ban Act of 1988, Pub. L. 100-688, amended MPRSA to prohibit any person from dumping sewage sludge into ocean waters after December 31, 1991. In addition, Congress limited ocean dumping during the interim period to those who were authorized as of September 1, 1988, to dump either under an MPRSA permit or a court order. Further, Congress prohibited dumping after August 15, 1989, unless an MPRSA permit has been obtained by that time. EPA is moving forward to issue permits under 40 CFR Parts 220 through 228 for the limited universe of POTWs eligible to continue dumping.

Today's proposal includes specific numerical limits or equations for calculating these limits for 28 pollutants in one or more use or disposal methods. Not every pollutant is regulated under each method.

Today's proposal raises many precedential scientific, technical and policy issues. Therefore, the numerical limits included in today's proposal may change, based on the Agency's data gathering initiatives and public comments. It would not be advisable for permit writers to use these proposed numerical limits before the Agency revises "Guidance For Writing Case-By-Case Permits For Municipal Sewage Sludge" scheduled for later this year.

When sewage sludge is applied to agricultural lands, distributed and marketed, placed in monofills, or incinerated, numerical limits are established using exposure assessment models designed to protect the MEI. The models are used for these practices because the MEI and the population as a whole are likely to receive a high level of pollutant exposure or because there are significant uncertainties about the effect of a pollutant in a use or disposal practice.

The numerical limits derived from the exposure assessment models are based on human health or environmental criteria already published or promulgated by the Agency, on human health criteria developed by the Agency, or on plant and animal toxicity values published in the scientific literature. When sewage sludge is incinerated, the numerical limits for beryllium and mercury are based on the NESHAPs for these pollutants, and the numerical limit for lead is based on the NAAQS for

lead. When the objective is to protect sources of drinking water, pollutant limits were developed which would ensure the MCLs are not violated. When the objective is to protect surface water, Water Quality Criteria are used.

If the Agency has not published or promulgated criteria for specific pollutants, EPA is proposing to use reference doses listed in the Agency's computerized Integrated Risk Information System (IRIS) and risk specific doses corresponding to an incremental carcinogenic risk level of 1×10^{-4} , except when sewage sludge is incinerated. For the incineration of sewage sludge, numerical limits are established to ensure pollutant levels do not exceed a risk specific concentration corresponding to an incremental carcinogenic risk level of 1×10^{-6} . Terrestrial criteria designed to protect plants or animals are based on toxicity values determined from the appropriate scientific literature.

For sewage sludge that is disposed of in monofills or is incinerated, treatment works may submit site-specific data for a limited number of physical parameters related to the site. The permitting authority will use the treatment works' site-specific data to re-calculate a numerical limit using EPA-approved exposure assessment models. Because these re-calculated numerical limits are based on the same human health and environmental criteria as the national numerical limits, the re-calculated limits will adequately protect human health and the environment.

If practices do not result in high levels of pollutant exposure to the MEI and the aggregate analyses do not show significant human health effects on the population as a whole, the pollutant limits are based on existing sewage sludge quality. Numerical limits based on existing sewage sludge quality are derived from the 98th-percentile concentrations of the "40 City Study." These pollutant concentrations are used to establish numerical limits for pollutants in sewage sludge that is applied to nonagricultural lands or disposed of on surface disposal sites.

The rule also lists pollutants for which removal credits may be authorized. In addition to the pollutants for which numerical limits are established, removal credits may be available for pollutants that EPA examined without establishing numerical limits. No limits are established for this latter group of pollutants because either the Agency determined that at the concentrations found in sewage sludge, these pollutants do not interfere with the particular disposal practice or, for the incineration of sewage sludge, the Agency is

proposing to establish numerical limits for total hydrocarbons rather than for individual organic pollutants.

The rule establishes limits for pathogenic organisms or indicator organisms (fecal coliforms and fecal streptococci/enterococci) for sewage sludge that is applied to land, distributed and marketed, or disposed of in monofills or on surface disposal sites. The proposal also includes requirements for reducing the attraction of vectors to sewage sludge.

Supplementing the numerical limits are management practices and other general requirements to reduce levels of pathogenic organisms and to prevent gross abuse of the environment. For the distribution and marketing of sewage sludge, the rule requires the distributor to label the product or to include information sheets with the product. The labels or information sheets are to identify the contents of the product and to provide instructions on the proper use of the product.

The rule also proposes monitoring, record keeping, and reporting requirements. The frequency with which sewage sludge is to be monitored depends on the size of the treatment work. The pollutants for which treatment works must monitor their sewage sludge depend on their use or disposal method. The record keeping and reporting requirements are also specific to a particular method of use or disposal.

The proposed rule is expected to cover approximately 5,300 of the approximately 15,300 POTWs that use one or more of the methods included in the proposal. These 5,300 facilities generate or treat approximately 55 percent of the sewage sludge. Of the remaining POTWs, an estimated 6,700 dispose of their sewage sludge (41 percent of the total sludge generated) in MSWLFs that are to be regulated under the proposed 40 CFR Part 258 (53 FR 33314, August 30, 1988). The remaining 3,300 POTWs use other disposal practices not covered in either this proposal or the MSWLF proposal.

The Regulatory Impact Analysis estimates that current use or disposal practices contribute 12.3 cancer cases annually, based on a life time cancer risk ranging from 5×10^{-2} for incineration to 2×10^{-6} for the land application to non-agricultural land. The other health effects are primarily associated with lead exposure and result in 5,998 cases of hypertension, diminished learning capacity in children, or prenatal birth effects. The Agency estimates the benefits of the proposal to be a reduction of 9.5 cancer cases and a reduction of 5,266 lead cases.

The Agency estimates that the use or disposal of sewage sludge costs POTWs approximately \$844,000,000 annually. For the purpose of the regulatory impact analysis, the Agency estimated that approximately 509 POTWs may have sewage sludge which does not meet the proposed numerical limits. This estimate does not take into consideration the possibility that some POTWs may come into compliance by using site-specific data to calculate new numerical limits and by imposing more stringent pretreatment requirements on their industrial dischargers. The Agency estimates annual compliance costs of \$157.7 million (in 1987 dollars) or an increase of \$5 annually for each household served by the POTWs. The total annual incremental compliance costs include costs for sludge monitoring, management practices, and, in some cases, incremental costs of changing a practice for POTWs that fail to meet the numerical limits.

The technical support documents, aggregate human health risk analyses, the regulatory impact analyses, and the preamble discuss the factors that EPA considered, the data it evaluated, and the determinations that it made in developing today's proposal. The preamble summarizes this information in 15 parts.

Part I briefly describes the generation, volume, and constituents of sewage sludge and the factors that communities must consider in using or disposing of the sewage sludge that results from the treatment of domestic sewage and municipal wastewater. Part I also identifies the ways in which communities commonly use or dispose of their sewage sludge, the benefits of reusing sewage sludge, and the risks associated with its disposal.

Part II lists existing Federal and State requirements for the use and disposal of sewage sludge including the relationship of the existing requirements to today's proposal.

In Part III, the preamble begins to describe how the Agency developed the proposed rule. Initially, the Agency selected pollutants most likely to interfere with the safe use or disposal of sewage sludge and then refined the list of pollutants based on the availability of information on the toxic effects of the pollutants.

In refining the initial list of pollutants, the Agency simulated the movement of pollutants into and through the environment with a series of exposure assessment models to determine the concentrations of pollutants reaching an individual, plant, or animal. Part IV describes these models, the assumptions

used in the models, and the questions and uncertainties about the models.

Parts V and VI discuss the human health and environmental criteria that the Agency considered and used in determining the concentration at which a pollutant would cause an adverse human health or environmental effect.

Prior to selecting its approach for establishing standards for a particular use or disposal method, the Agency examined the aggregate human health effects on the nation from the use and disposal of sewage sludge. The methods used to conduct these analyses and the results are described in Part VII.

Part VIII discusses the four regulatory options considered by the Agency for establishing numerical limits and management practices. Included in the discussion are the factors on which the Agency based its selection of a regulatory approach that would adequately protect public health and the environment.

Part IX describes, in separate subparts, the requirements that apply to the use and disposal of sewage sludge and explains how and why they were selected. Examples illustrate how the pollutant limits are calculated and, where applicable, how the numerical limits may be recalculated based on site-specific data. The Agency discusses

alternatives that were considered and invites public comment. In addition, separate subparts of Part IX describe the pathogen and vector attraction reduction requirements; the pollutants eligible for removal credits; and the monitoring, record keeping, and reporting requirements.

Part X briefly discusses the implementation of the rule through Federal and State permit programs. Under a separate rulemaking, the Agency proposed State program management requirements and changes in the National Pollutant Discharge Elimination System permitting requirements (see 53 FR 7642, March 9, 1988).

The benefits, costs, and regulatory impact of the proposed rule are described in Part XI. This part also discusses the data limitations and assumptions and determinations that the Agency made in fulfilling its responsibilities under Executive Order 12291.

Throughout the preamble, issues are raised and alternatives are discussed. Public comment is invited on these issues and alternatives. Where data are missing, the Agency identifies the information needed to complete its development of the proposal. The issues, alternatives, and data on which the

agency is inviting public comment are delineated in PART XII.

Part XIII provides information on where interested persons may obtain copies of the proposed rule, the technical support documents, the models used in establishing the numerical limits, the aggregate effects assessment, and the regulatory impact analysis. Included in this part is the list of references cited throughout the preamble.

Part XIV describes the proposed changes in 40 CFR Part 257. These changes are limited to removing from coverage in Part 257 sewage sludge disposal methods which will be subject to the new standard the Agency is proposing in 40 CFR Part 503.

Finally, Part XV lists the subjects in 40 CFR Parts 257 and 503.

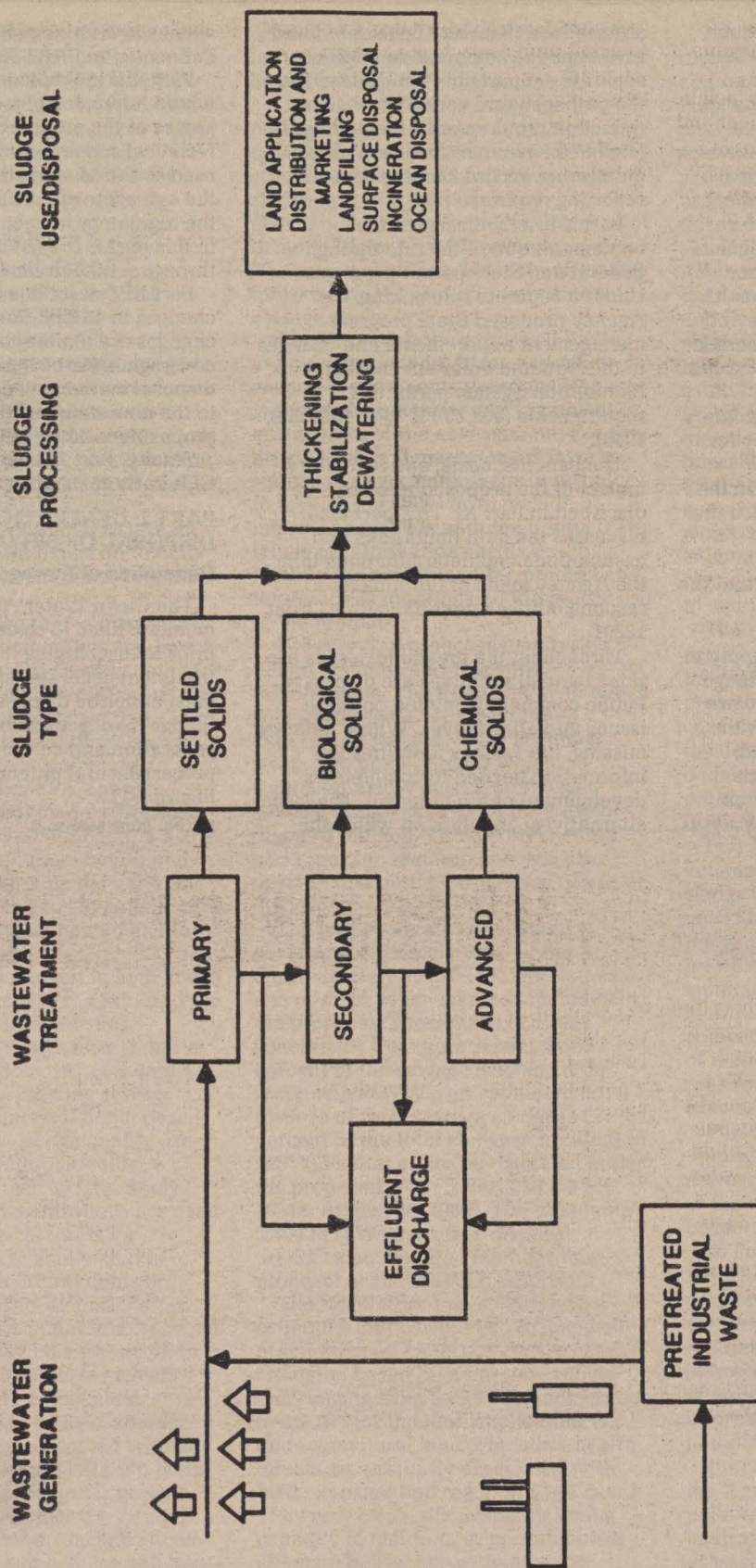
PART I: GENERATION, USE, AND DISPOSAL OF SEWAGE SLUDGE

Generation of Sewage Sludge

The Clean Water Act (CWA) requires municipalities to clean their wastewater prior to discharging it. Wastewater treatment generates sludge which in turn must either be disposed of or used. Sludge management begins with sludge generation and continues through sludge processing and ultimate disposal (see Figure I-1).

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Figure I-1 Generation, Processing, and Use/Disposal of Municipal Wastewater Sludge.



Domestic wastewater contains material flushed into household drains through toilets, sinks, and tubs. Components of domestic sewage include soaps, shampoos, human excrement and tissue, food stuffs, detergents, pesticides, household hazardous waste, and oil and grease. Typically a family of four discharges 300 to 400 gallons of wastewater per day.

Domestic wastewater is treated at its source in septic tanks, cesspools, portable toilets, or in publicly or privately owned wastewater treatment works. These treatment works may treat domestic wastewater alone, or a combination of domestic wastewater and industrial wastewater.

Municipal wastewater treatment works may use one or more levels of treatment (i.e., primary, secondary, or tertiary) to clean this wastewater. Each level of treatment provides both greater wastewater clean-up and greater amounts of sludge.

Primary treatment processes remove the solids that settle out of the wastewater by gravity. This generates 2,500 to 3,500 liters of sludge per million liters of wastewater treated. Primary sludge contains three to seven percent solids, 60 to 80 percent of which is organic matter. The water content of primary sludge can easily be reduced by thickening or by removing water.

Secondary treatment produces a sludge generated by biological treatment processes. Biological treatment processes (e.g., activated sludge systems, trickling filters, and other attached growth systems) utilize microbes to break down and convert the organic substances in the wastewater to microbial residue. These processes remove up to 90 percent of the organic matter in the wastewater and produce a sludge that typically contains from one-half to two percent solids. These solids are generally more difficult to de-water than primary sludges. The organic content of the solids ranges from 50 to 60 percent. Secondary treatment processes increase the volume of sludge generated over primary treatment by 15,000 to 20,000 liters of sludge per million liters of wastewater treated.

Advanced wastewater treatment processes, such as chemical precipitation and filtration, produce an

advanced or tertiary sludge. Chemical precipitation uses chemicals to remove organics and nutrients and to separate the solids from the wastewater. Characteristics of these sludges vary depending upon the type of advanced treatment process used and the type of wastewater entering the treatment process. Because these sludges typically contain considerable amounts of added chemicals, the solids content will vary from 0.2 to 1.5 percent, while the organic content of the solids will be in the 35 to 50 percent range. Tertiary treatment increases the volume of sludge generated over secondary treatment by another 10,000 liters of sludge per million liters of wastewater treated.

Sewage sludge contains from 93 to 99.5 percent water, as well as the solids and dissolved substances that were present in the wastewater or that were added or cultured by the wastewater treatment process. While virtually all sewage sludge contains nutrients (e.g., nitrogen, phosphorus) and significant numbers of pathogens (e.g., bacteria, viruses, protozoa, and eggs of parasitic worms), some sludges also contain more than trace amounts of organic chemicals (e.g., chloroform) and inorganic chemicals (e.g., iron). These pollutants come from domestic wastewater, from the discharge of industrial wastewater to municipal sewers, and from the runoff from parking lots and lawns and fields where fertilizers and pesticides were incorrectly applied.

Sludge Processing

Prior to reusing or disposing of sewage sludge, treatment works generally thicken, stabilize, and dewater the sludge. Sludge thickening is the removal of water from sludge to achieve a volume reduction. The reduction in sludge volume decreases the capital and operating costs of subsequent sludge processing and disposal operations. For example, lowering the volume of sewage sludge reduces transportation costs. EPA estimates that the cost of transporting sewage sludge with a 22 percent solids content over a 20 mile trip is about one-half the cost of transporting sewage sludge with a six percent solids content over the same distance.

Treatment works frequently digest or compost their sewage sludge to reduce

the level of pathogens and odors. The degree to which a sludge is processed is very important when applying sewage sludge to land, when distributing and marketing it, and when placing sewage sludge in monofills or on surface disposal sites in order to eliminate the spread of pathogenic diseases.

Amount of Sewage Sludge Generated

Approximately 15,300 publicly owned treatment works (POTWs) generate 7.7 million dry metric tons of sludge annually (see Table I-1), or 64 pounds of sewage sludge (dry weight basis) for every individual in the United States. This volume is expected to double by the year 2000 due to population growth, stricter wastewater treatment requirements, and a greater number of better-operated POTWs. The sewage sludge generated each year would fill 185,950 railroad cars, which, if connected, would span half the country.

Unless the volume of sludge is reduced, the nation cannot achieve its environmental quality objectives. Treatment alone is not the answer. Communities should consider the following measures: Implementation of waste separation and water conservation programs; encouragement of the recycling of garbage in compost piles; separation of household hazardous waste prior to collection and handling; and separation of storm water from wastewater sewer systems. These measures have proved successful in reducing the volume of wastewater generated and in improving the quality of the sewage sludge that is ultimately used or disposed of.

Use and Disposal Methods

The following are common methods of using or disposing of sewage sludge: application to agricultural and non-agricultural lands; distribution and marketing of sewage sludge for use in home gardens; disposal in landfills, monofills, and on surface disposal sites; incineration; and ocean disposal.

Table I-1 shows the amount of sludge that is generated based on the size of a facility and on the amount of sewage sludge that is disposed of by a use or disposal practice. Table I-2 shows the number of facilities using a particular method of use or disposal.

TABLE 1-1.—AMOUNT OF SEWAGE SLUDGE GENERATED BY SIZE OF POTW AND DISPOSED OF BY A USE/DISPOSAL PRACTICE*

[Thousands of dry metric tons per year]

Use/disposal practice	Size of POTW					Total	Use/disposal practice as percent of total
	0<0.2 MGD	0.2<1 MGD	1<10 MGD	10<60 MGD	>60 MGD		
Land application.....	23.1	103.0	438.3	321.5	316.2	1,202.2	15.6
Distribution and marketing.....	0.1	4.0	36.3	97.5	567.5	705.5	9.1
Municipal landfills.....	56.5	278.6	1,043.1	899.5	884.7	3,162.3	41.0
Monofills.....	0.1	2.8	25.5	44.5	28.5	101.4	1.3
Surface disposal.....	27.6	33.5	40.9	79.9	15.5	197.5	2.6
Incineration.....	0	0.6	94.1	383.6	1,173.1	1,651.4	21.4
Ocean disposal.....	0	0.3	1.2	35.4	387.4	424.4	5.5
Other.....	37.8	45.8	56.0	109.3	21.1	270.0	3.5
Total.....	145.3	468.6	1,735.5	1,971.2	3,394.0	7,713.6	
Size class as percent of total.....	1.9	6.1	22.5	25.5	44.0	100	

*Assumptions are that the amount of sewage sludge generated is identical to the amount of sewage sludge disposed of and that a facility uses a single practice to dispose of its sludge.

TABLE 1-2.—THE NUMBER OF POTWS USING A USE/DISPOSAL PRACTICE AND THE SEWAGE SLUDGE GENERATED BY POTWS USING THE PRACTICE

Use/Disposal practice	POTWS using a practice number	Percent of POTWS	Volume generated (1000's of dry MT/year) volume	Percent of sewage sludge
Land application.....	2,623	17.1	1,202.2	15.6
Distribution and marketing.....	106	0.7	705.5	9.1
Municipal landfills.....	6,664	43.5	3,162.3	41.0
Surface disposal.....	2,395	15.6	196.4	2.5
Monofills.....	49	0.3	101.4	1.3
Incineration.....	169	1.1	1,651.4	21.4
Ocean disposal.....	25	0.2	424.4	5.5
Other.....	3,274	21.4	270.0	3.5
Total.....	15,305	100.0	7,713.6	100.0

Source: Draft Regulatory Impact Analysis of the Proposed Regulation for Sewage Sludge Use and Disposal, November 1988.

Benefits Of Reusing Sewage Sludge

The organic and nutrient content of sewage sludge makes it a valuable resource to use both in improving marginal lands and as a supplement to fertilizers. Although not a high grade fertilizer, the organic content in sewage sludge contains \$30 to \$60 per dry ton worth of organic nitrogen and phosphorus. A study of sewage sludge and effluent use on selected agricultural crops in one area of Oregon found that the return per acre of sludge application ranged from a loss of \$6 to an increase of \$15 per acre, compared to traditional fertilizer sources, depending on the crop rotation involved, previous soil management practices, soil type, and level of sludge application. These were net savings in the cost of fertilizers, taking into account the fact that the sludge was available at no cost to the farmer (Reference number 7).

The beneficial uses of sludge are not limited to the production of agricultural commodities. Sludge is used in silviculture to increase forest productivity and to re-vegetate and stabilize harvested forest land and forest land devastated by fires, land

slides, or other natural disasters. The application of sewage sludge to forest land shortens wood production cycles by accelerating tree growth, especially on marginally productive soils. Studies at the University of Washington on the use of sludge as a fertilizer in silviculture show height increases of up to 1,190 percent and diameter increases of up to 1,250 percent compared to controls in certain tree species. University of Washington research has also shown that trees grow twice as fast on sludge-amended soil. This means that a tree which would typically be cut after 60 years could be cut after only 30 years to supply lumber for a variety of purposes.

Sludge is productively used to stabilize and revegetate areas destroyed by mining, dredging, and construction activities. Air-dried sludge that looks like compost is frequently used to fertilize highway median strips, clover leaf exchanges, and for covering expired landfills. Historically, land reclamation has been very successful and comparable in cost to other commercial methods. In a strip-mined area in Fulton County, Illinois, reclamation using municipal sewage sludge cost \$3,660 an

acre, as compared with a range of \$3,395 to \$6,290 an acre using commercial methods (Reference number 86). Pennsylvania has used the sludge Philadelphia generates to reclaim over 3,000 acres of devastated lands. Sludge, in combination with fly ash, is currently used in the re-vegetation of soils that have become highly contaminated from the operation of a zinc smelter in Palmerton, Pennsylvania over the past 90 years (Reference number 31).

Our analyses show that current use practices, land application, and distribution and marketing pose less carcinogenic risk than disposal practices. On a per ton basis, carcinogenic risks from reusing sewage sludge range from 2×10^{-8} to 9.9×10^{-7} , while those from incinerating and disposing of sewage sludge in monofills range from 3×10^{-3} to 5×10^{-2} .

Studies using Philadelphia sludge have shown that the microbial communities in reclaimed mined soils revert to those of normal soils within 2 to 3 years. It may take as long as 10 to 15 years, or even longer, with conventional reclamation (Reference number 31).

Forest soils have been found to be well suited to sludge application because they have high rates of infiltration (which reduce run-off and ponding), large amounts of organic material (which immobilize metals from the sludge), and perennial root systems (which allow year-round application in mild climates). Although forest soils are frequently quite acidic, research at the University of Washington has found no problems with metal leaching following sludge application (Reference number 37). In addition, studies of animals living on sludge treated sites have found that the animals are healthier than those on control sites because of the increased availability of vegetative matter.

The sale of sewage sludge products can be used to defray the costs of dewatering and composting the sewage sludge, but there is no similar mechanism to defray the costs of dewatering sewage sludge placed in landfills or incinerated. Further, the labor, capital, and operating and maintenance costs of incinerating sewage sludge are substantial.

The Municipality of Metropolitan Seattle (METRO), which treats wastewater in the Seattle-King County region, began using sludge to improve soil in several Seattle area parks, restore land disturbed during strip mining, restore a gravel pit used for Interstate 90 construction, and enhance grass growth at the King County International Airport at Boeing Field. In October 1983, the METRO Council adopted a Sludge Management Plan that outlined its goal to use at least eight alternative sludge recycling or disposal methods through the year 2000. METRO reports that its plants produced 65,000 tons of sludge in 1985 and more than 91,000 tons in 1987. Sludge production is expected to increase dramatically in the next decade after METRO's Puget Sound plants are upgraded from primary to secondary treatment. The Agency says that by creating a demand for sludge and developing a variety of recycling options, it reduced program expenses from \$227 per ton of sludge solids in 1983 to \$148 in 1987.

The benefits of using sewage sludge to improve land productivity are substantial. However, if sewage sludge containing high levels of pathogenic organisms (e.g., viruses, bacteria) or high concentrations of pollutants is improperly handled, the sludge could contaminate the soil, water, crops, livestock, fish, and shellfish. The major human health, environmental, and aesthetic factors of concern in the land application of sewage sludge are related to pathogens, metals and persistent

organic chemicals content, and odors. The standards proposed today would prevent the contamination of soil and crops by pathogens, as well as the contamination of food and animal feed crops by methods and organic pollutants when sewage sludge is applied to lands used in the production of agricultural crops or to lands that may be converted to residential use.

In spite of the benefits of reusing sludge, only 25 percent of the sewage sludge generated in the United States is effectively reused by applying it to the land or by distributing and marketing it for use in home gardens (see Table I-2). In comparison, the 12 countries in the European Economic Community apply 35 percent of their sewage sludge to the land. Japan uses 42 percent of its sewage sludge for coastal reclamation and home garden or farming uses. The United Kingdom applies 51 percent of its sewage sludge to the land (Reference number 3).

While the CWA reserves the choice of use and disposal practices to local communities, EPA's preference is for local communities to reuse this resource in beneficial ways. On June 12, 1984, the EPA published its policy on the management of sewage sludge stating that the Agency will actively promote those municipal sludge management practices that provide for the beneficial use of sludge while maintaining or improving environmental quality and protecting public health (see 49 FR 24358).

When the quality of the sewage sludge appears to be a limiting factor for an otherwise desirable use, POTWs can require their industrial users to pretreat contaminated industrial wastewater before discharging the wastewater to the POTW for cleansing. Controlling the quality of industrial wastewater discharged into municipal sewers is an important element in managing the quality of sewage sludge.

POTWs designed to accommodate flows of more than 5 million gallons per day and smaller POTWs with significant industrial discharges are required to establish local pretreatment programs. Approximately 1,500 of the nation's 15,300 POTWs have local pretreatment programs. The local program must enforce all categorical pretreatment standards and may impose more stringent discharge requirements (i.e., local limits) where necessary to prevent pollutants from interfering with or passing through the POTW wastewater treatment processes.

In addition to wastewater reduction and the separation of contaminated waste from uncontaminated wastes,

pretreatment of industrial wastewater is another key step in managing the quality of sewage sludge. If pretreatment does not reduce the pollutant levels sufficiently, communities may have to dispose of rather than use their sludge and, depending on the disposal method, add pollution controls and thereby increase the cost of sludge disposal.

Reuse Practices

Land Application to Agricultural Lands

Seventy-seven percent of the sludge applied to land (approximately 926,000 dry metric tons) is used to improve the condition and nutrient content of soil for agricultural crops, including row and feed crops and pastures. The method of applying sludge to agricultural land depends on the physical characteristics of the sludge and soil and on the crops grown. Liquid sludge may be applied with tractors, tank wagons, irrigation systems, or special application vehicles. Liquid sludge may also be injected under the surface layer of the soil. Dewatered sludge, on the other hand, is typically applied to cropland by equipment similar to that used for applying limestone, animal manures, or commercial chemical fertilizers. Generally, the dewatered sludge is applied to the land surface and then incorporated by plowing or disking. When applied to pasture land, sludge is usually not incorporated into the soil.

Land Application to Non-Agricultural Lands

Sludge application to forest land has been undertaken, at least on an experimental field-scale level, in 10 or more States. The most extensive experience with this practice is in the Pacific Northwest. Sludge is most often sprayed from mobile equipment into established forest stands as a partially dewatered, but still liquid, material.

When sewage sludge is used to stabilize and revegetate land, typically large amounts of sludge (usually 112 metric tons per hectare) are applied on a one-time basis. This large amount is necessary to ensure that sufficient organic matter and nutrients are introduced into the soil to support vegetation until a self-sustaining ecosystem is established.

Distribution and Marketing

Nine percent of the sewage sludge generated is distributed and marketed. As a method of managing sewage sludge, distribution and marketing is a highly beneficial practice and one the Agency encourages.

Usually, sewage sludge that is distributed and marketed is composted.

In composting sewage sludge, the sludge is de-watered; mixed with a bulking agent, such as wood chips, bark, rice hulls, straw, or previously composted sludge; and allowed to decompose aerobically for a period of time. In this form, the sewage sludge is dry and easier to distribute. It is also easier for the user to handle. Sewage sludge that is distributed and marketed is used as a substitute for topsoil and peat on lawns, golf courses, parks, and in ornamental and vegetable gardens. Yield improvements have been valued at \$35 to \$50 per dry ton over other potting media.

Risks of Disposal Methods

Communities should consider alternatives other than burying or burning their sludge. These are wasteful practices that pose risks and incur costs. Some methods of sewage sludge disposal, such as incineration and uncovered landfills, may contribute to global warming (i.e., the "greenhouse effect") by releasing carbon dioxide and methane.

Sewage sludge with high concentrations of organic and metal pollutants could pose human health problems, when disposed of in monofills or on surface disposal sites, if the pollutants leach out of the unit into the ground water. Therefore, the concentration of the pollutants must be limited, or other measures must be taken, to ensure that ground water is not contaminated.

For the incineration of sewage sludge, municipalities must take sufficient measures to control the emissions from sewage sludge incinerators. Otherwise, particulates, sulfur dioxide, oxides of nitrogen, heavy metals, toxic organic compounds, and hydrocarbons will add to a community's air pollution problems.

Ocean dumping of sludge, which Congress banned after 1991, may result in the destruction of biota that influence the balance between oxygen and carbon dioxide. In ocean disposal, there is a potential for the bioaccumulation of certain pollutants often associated with municipal sludge, including mercury, cadmium, and polychlorinated biphenyls. High levels of these pollutants may interfere with the reproductive systems of certain marine organisms, may produce toxic effects in aquatic life, or may present public health problems if contaminated fish and shellfish are eaten.

Disposal Methods

Land Application to Dedicated Sites

Sludge is often disposed of at sites specifically set aside for sewage sludge

disposal. Relatively large quantities of sludge (220 to 900 metric tons per hectare) are applied to sites for many years. No attempt is made to use the nutrient and soil conditioning properties of the sewage sludge.

The objective of this practice is to employ the land as a treatment system by using soil to bind metals and by using soil microorganisms, sunlight, and oxidation to destroy the organic matter in the sludge. These sites are generally owned by, or are under long-term leases to, a treatment work. Frequently, the dedicated land disposal site has a non-food chain vegetative cover crop (e.g., sod, pulpwood) to reduce the potential for runoff or leaching of the pollutants to surface or ground water.

Landfilling

Landfilling is a sludge disposal practice in which sludge is deposited in a dedicated area, alone or with solid waste, and buried beneath a soil cover. Landfilling is another disposal method that does not attempt to recover the nutrient content of the sludge for beneficial uses. However, the decomposition of organic matter in sewage sludge that is landfilled produces methane gas. The methane gas can be recovered and yields an energy value more than half as great as that of natural gas.

Forty-one percent of the sewage sludge disposed of by POTWs is landfilled with municipal solid waste. In co-disposal, the absorption characteristics of the solid waste and soil conditioning characteristics of the sludge complement each other. The solid waste absorbs excess moisture from sludge and reduces leachate migration. Sewage sludge usually makes up five percent or less of the material in a solid waste landfill.

Slightly more than one percent of the sewage sludge generated is disposed of in monofills (landfills only accepting sewage sludge). EPA has identified 49 POTWs that dispose of their sewage sludge in monofills. Most monofills consist of a series of trenches, dug into the ground, into which de-watered sludge is deposited and then covered with soil. Other monofill designs, in which the sludge is deposited on the ground surface (area fill mounds, area fill layers, and disked containment) do exist, but these are not commonly used.

Surface Disposal

Sewage sludge surface disposal, like land application to dedicated non-agricultural land and disposal in monofills, is a disposal practice. The majority of surface disposal sites are

smaller than one acre and receive less than 50 gallons per day of waste.

The Agency is collecting additional data on the characteristics of surface disposal sites, as compared to monofills or to dedicated non-agricultural land-application sites. Generally, surface disposal sites do not have a vegetative or soil over. Depending on the State in which they are located, surface disposal sites may be regulated in a manner similar to monofills or landfills. In other cases, surface disposal sites are areas of land where sewage sludge has been placed for many years with little or no consideration given to its ultimate disposal.

Incineration

Incineration is a disposal practice that destroys the organic pollutants and reduces the volume of sewage sludge. Incineration takes place in a closed device using a controlled flame. EPA estimates that approximately 1.7 million dry metric tons of sewage sludge are incinerated each year, accounting for more than 20 percent of the sewage sludge disposed of by POTWs.

If the sewage sludge contains 20 percent solids, incinerators reduce the volume of sewage sludge by about 90 percent, on a wet weight basis. While this reduces the amount of material that must be landfilled, owners or operators must control the concentration of the pollutants in the incinerator emissions to prevent exacerbation of a community's air pollution control problems. They must also allocate sufficient funds to pay for the labor, capital, operating, and maintenance costs of sewage sludge incinerators.

Currently, 169 POTWs use 282 incinerators to dispose of their sewage sludge. Most of the incinerators (232) were built prior to 1973, when the New Source Performance Standards for Sewage Sludge Incinerators were published (40 CFR Part 60, Subpart O). Multiple hearth incinerators are the most commonly used sewage sludge incinerators. There are 231 multiple hearth incinerators (82 percent of the incinerators firing sewage sludge), 37 fluidized bed incinerators (13 percent of the total), and five electric incinerators. The remaining incinerators fire sewage sludge with solid waste in municipal waste combustors. A description of these incinerators is included in the "Technical Support Document for Incineration" (Reference number 56).

Ocean Disposal

Ocean disposal of sewage sludge involves the transport of sludge on ocean-going barges to a specially

designated site. Under the authority of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, EPA has approved only one site for the ocean disposal of sewage sludge, the 106-Mile Ocean Waste Disposal Site. That site is located 106 nautical miles southeast of the Ambrose light and approximately 120 nautical miles southeast of Cape May, New Jersey. On November 18, 1988, the President signed the Ocean Dumping Ban Act of 1988, which prohibits the dumping of sewage sludge after December 31, 1991. Until the ban goes into effect, permits will be issued under MPRSA to those municipalities that were authorized as of September 1, 1988 to dump sewage sludge at the 106-Mile Site. In issuing permits during the interim period, the Agency will ensure that the rate of dumping will not attain a rate that would adversely affect aquatic life.

PART II: FEDERAL AND STATE REQUIREMENTS

The use or disposal of sewage sludge is currently subject to some Federal regulation. Existing Federal regulations are authorized under several legislative mandates and have been developed independently along media-specified concerns. State regulations generally are keyed to Federal regulatory requirements, primarily those in 40 CFR Part 257, covering the land application and landfilling of sewage sludge, and those in 40 CFR Part 60, Subpart O, covering sewage sludge incinerators.

This part starts with a discussion of the requirements of the Clean Water Act (CWA), followed by a description and summary of other Federal and State regulatory requirements and how they will relate to today's proposal.

Clean Water Act Statutory Requirements

Sewage sludge has been an important concern of the Agency since 1972, when EPA, through the Federal Water Pollution Control Act construction grants program began assisting in the financing of wastewater treatment facilities. The Clean Water Act of 1977 amended Section 405, mandating that EPA develop guidelines for the use and disposal of sewage sludge. Under Section 405(d), EPA was required to issue regulations that:

- (1) Identify uses for sludge, including disposal;
- (2) Specify factors to be taken into account in determining the measures and practices applicable to each such use or disposal (including publication of information on costs); and

- (3) Identify concentrations of pollutants which interfere with each such use or disposal.

Responding to this mandate, in 1979, EPA adopted criteria which provided guidelines for sludge utilization and disposal when sludge was applied to land or disposed of in landfills. These criteria were included in regulations promulgated under Subtitle D of RCRA and section 405(d) of the CWA and are found in 40 CFR Part 257. These regulations contain a number of specific requirements for the management of sludge. To protect the ground water, the regulations prohibit any use or disposal of sludge that causes the concentration of ten heavy metals and six organic chemicals in an underground drinking water source to exceed maximum contaminant levels (MCLs) specified in the criteria. The criteria also included management standards applicable to sludge use or disposal methods to protect surface waters, flood plains, and endangered species. The criteria contain limitations on the concentration of two pollutants (cadmium and polychlorinated biphenyls—PCBs) in sludge when the sludge is applied to the surface of land used for the production of animal feed or food-chain crops. In addition, the requirements in Part 257 restrict sewage sludge disposal except in compliance with certain measures to control pathogens and disease-carrying rodents, insects, and birds. The regulation provided for different levels of pathogen reduction, depending on whether crops for direct human consumption were grown or animals for human consumption were allowed to graze on the sludge-amended soil. The methods for reducing the levels of pathogens include aerobic and anaerobic digestion, composting, lime stabilization, and heat treatment and drying.

As part of its sludge regulatory program, EPA has prepared a number of documents which provide guidance and direction to local publicly owned treatment works (POTWs) on the proper management and handling of sludge. EPA has actively encouraged and assisted in the development and implementation of various practices and processes leading to the beneficial use of sludge. In addition to supporting long-term research and demonstration projects, the Agency has also assisted in the development of detailed design guidance for various beneficial methods of disposal and such technologies as digestion, composting, and lime stabilization. The Agency has also supported development of improved dewatering systems, pyrolysis, and other technologies to improve energy recovery

from thermal conversion systems, methane recovery from anaerobic digestion systems, and the recovery of various potentially marketable by-products from sludge.

A lack of action in developing the comprehensive sewage sludge regulations promised in the preamble to the 40 CFR Part 257 rule (44 FR 53439, September 13, 1979) led to the creation of an Intra-Agency Sludge Task Force in 1982. The Task Force was assigned the following tasks: (1) Conducting a multimedia examination of sludge management, focusing on sludge generated by POTWs; and (2) developing a cohesive Agency policy on sewage sludge management, designed to guide implementation of the Agency's sewage sludge regulatory and management programs. Numerous Agency offices and *ad hoc* groups had wrestled with sewage sludge management, but none of these groups had been able to decide how to equitably regulate, on a national level, a complex and variable waste in an environmentally protective and cost-effective manner. Sewage sludge use or disposal involved a myriad of site-specific circumstances, could result in multimedia effects, and depended on proper planning and decision-making at the local level. The Agency lacked experience in developing performance standards for solid waste that would attenuate multimedia environmental effects. Furthermore, at that time, Congress had not provided a compliance mechanism for the regulations.

The Task Force, which included representatives from all parts of the Agency, recommended that the Agency develop an integrated, comprehensive regulatory structure for sludge use or disposal using the combined authorities of section 405 of the CWA and other laws. This structure would also incorporate existing regulations and, where appropriate, new regulations to complete regulatory coverage where important gaps remained.

While the Agency was working on a regulatory approach consistent with the recommendations of the Task Force, the Natural Resources Defense Council sued the Agency over EPA's pretreatment regulation (40 CFR Part 403). In that suit, the U.S. Court of Appeals for the Third Circuit (*Natural Resources Defense Council v. EPA*, 790 F.2d 289, 3rd Cir., 1986) ruled that the pretreatment regulation was invalid in four respects. Most relevant here is the Court's fourth holding:

We hold that, despite EPA's contention that sludge regulations are in place, EPA's device of incorporating other regulations does

not meet the statute's command for a comprehensive framework to regulate the disposal and utilization of sludge and that EPA cannot, in the absence of Section 405(d) regulations authorize the issuance of removal credits under Section 307(b)(1).

Throughout its lengthy consideration of the amendments to the CWA, some members of Congress expressed concern that, without sewage sludge regulations, industry would continue to discharge toxic pollutants into wastewater for POTWs to treat, making it more difficult for a city to find sludge management alternatives. They believed sludge criteria would stimulate effective pretreatment programs and would encourage recycling and reuse of toxic pollutants by industry. In the Water Quality Act of 1987 (Pub. L. 100-4, February 4, 1987), Congress reaffirmed its directive that EPA develop comprehensive sewage sludge regulations and set forth a schedule for the agency to do so. The Water Quality Act amended section 405(d) to include requirements that:

(1) By November 30, 1986, EPA propose regulations establishing numerical limits and acceptable management practices for toxic pollutants that EPA identified as present in sewage sludge in concentrations which, on the basis of information available on their toxicity, persistence, concentration, mobility, or potential for exposure, may adversely affect public health or the environment;

(2) By August 31, 1987, EPA promulgate regulations specifying acceptable management practices and establishing numerical limits for these pollutants that "shall be adequate to protect public and health and the environment from any reasonable anticipated adverse effects of each pollutant;"

(3) By July 31, 1987, EPA identify and propose regulations for those toxic pollutants not identified in the regulations promulgated August 31, 1987, and promulgate regulations for those toxic pollutants by June 15, 1988; and

(4) From time to time, but no less often than every two years, EPA review the regulations for the purpose of identifying additional toxic pollutants and promulgating regulations.

The amendments specify that compliance with the requirements of the regulations must occur not later than 1 year after publication of the regulations, unless the regulations require the construction of new pollution control facilities. In this latter case, compliance must occur no later than 2 years from the date of the regulations' publication.

Section 405(d)(5) also provides that nothing in the section is intended to

waive more stringent requirements in the CWA or in any other law. This means that States and local communities remain free to impose more stringent requirements than those included in today's proposal. In addition, as described later in the preamble, where EPA has established requirements applicable to sewage sludge under other statutes, those requirements are included in the proposed Part 503 requirements.

Section 405(e) was further amended to read as follows:

The determination of the manner of disposal for use of sludge is a local determination, except that it shall be unlawful for any person to dispose of sludge from a publicly-owned treatment works or any other treatment works treating domestic sewage for any use for which regulations have been established pursuant to subsection (d) of this section, except in accordance with such regulations.

The implications of this section are presented later in the preamble.

Other Federal Requirements

Traditionally, the Agency has used the standards, definitions, and approaches developed under other Federal public health and environmental programs when they are consistent with the goals and objectives of the CWA. The use of other Federal standards in responding to the broad mandate of section 405(d) is desirable in order to minimize duplicate, overlapping, and conflicting policies and programs. Further, as discussed above, section 405(d)(5) provides that nothing in section 405(d) is intended to waive more stringent requirements established under other statutes. Therefore, as previously indicated, one principle followed in developing today's proposal was to base pollutant limits on human health or environmental criteria established under other statutory authorities.

Under section 304(b) of the CWA, the Agency publishes Water Quality Criteria. For the purposes of Part 503, these criteria are used in making the determination that a pollutant limit for a particular method of use or disposal would not exceed a fresh-water quality criterion, should the pollutant reach the surface water. When the concern is to protect the drinking water supplies, the basis of the pollutant limits is the MCLs promulgated under authority of the Safe Drinking Water Act.

The National Ambient Air Quality Standard (NAAQS) for lead, promulgated under authority of section 109 of the Clean Air Act, and the National Emission Standards for Hazardous Air Pollutants (NESHAPs)

for beryllium and mercury, promulgated under authority of section 112 of the Clean Air Act, were used in developing the pollutant limits for these pollutants when sewage sludge is incinerated. Other applicable regulatory requirements for the incineration of sewage include the New Source Performance Standards for Sewage Sludge Incinerators promulgated under section 111 of the Clean Air Act and found at 40 CFR Part 60, Subpart O. Owners or operators of sewage sludge incinerators also must ensure that their operations, including the location of new incinerators, conform to State Implementation Plans approved under the regulations authorized by section 110 of the Clean Air Act and found at 40 CFR Parts 50 through 51.

State Requirements

The information on existing State requirements summarized below was gathered as part of EPA's effort in developing guidance for writing sewage sludge interim permits. Further information may be found in "Guidance For Writing Case-By-Case Permit Requirements For Municipal Sewage Sludge" (Reference number 52). After promulgation of the Part 503 standards, under section 510 of the CWA, States and local entities will retain the authority to impose more stringent standards than provided in this part.

At present, 42 States have regulations or guidelines covering the land application of sewage sludge which set either a maximum allowable concentration or maximum pollutant loading rate for at least one pollutant. Paralleling the requirements in 40 CFR Part 257, 41 States have set restrictions on the growing of crops on soil to which sludge has been applied (e.g., human food chain crops cannot be grown on sludge-amended soil until 18 months after the application of the sewage sludge). In addition, 41 States have established management practices for the land application of sewage sludge.

When States regulate the giveaway or sale of composted sludge, it is regulated under State land application requirements. Eleven States have set numerical limits on the concentration of pollutants in sewage sludge that is distributed and marketed and 22 States have established management practices governing the distribution and marketing of sewage sludge.

Many States enforce landfilling restrictions for non-hazardous sludge that follow the requirements in 40 CFR Part 257. While States have not set maximum pollutant concentrations for sewage sludge that is landfilled, 31

States do have some site restrictions or other management practices governing landfills.

Many States regulate the ambient emissions of sewage sludge incinerators. State implementation plans under the Clean Air Act limit emissions of various pollutants subject to NAAQS or NESHAPs. Twenty States have established opacity limits as well as emission limits for beryllium, mercury, particulates, sulfur dioxide, and carbon monoxide. No State has established a limitation on lead emissions from sewage sludge incinerators. Twenty-nine States have regulations or guidelines governing operation of incinerators, including disposal of the ash.

In one State, the development and enforcement of controls on all methods of sewage sludge use and disposal are delegated entirely to local agencies, as is the issuance of permits. In other States, local as well as State controls are imposed on the disposal of sewage sludge.

PART III: SELECTION OF POLLUTANTS FOR REGULATION

This part describes how the Agency selected the initial list of pollutants for which it is proposing numerical limits and the data bases used to collect information about the pollutants. Additional information may be found in "The Record of Proceedings on the OWSR Municipal Sewage Sludge Committees" and "Summary of the Environmental Profiles" (Reference numbers 80 and 41).

Initial List of Pollutants

In the Spring of 1984, EPA enlisted the assistance of Federal, State, academic, and private sector experts to determine which pollutants, likely to be found in sewage sludge, should be examined closely as possible candidates for special numerical limits. These experts screened a list of approximately 200 pollutants in sludge that, if disposed of improperly, could cause adverse human health or environmental effects. The experts were requested to revise the list, adding or deleting pollutants. The test for inclusion or exclusion was the potential risk to human health and the environment when sewage sludge containing a particular pollutant was applied to the land, placed in a landfill, or incinerated. The Agency also requested that the experts identify the most likely route through which a pollutant could reach target organisms, whether human, plant, or wild or domestic animals. The experts attending the meetings recommended that the Agency gather additional environmental

information on approximately 50 pollutants. These pollutants are listed in Table III-1.

TABLE III-1.—POLLUTANTS SELECTED FOR ENVIRONMENTAL PROFILES/HAZARDS INDICES

Pollutants	Land application	Landfill	Incineration
Aldrin/Dieldrin.....	X		X
Arsenic.....	X	X	X
Benzene.....		X	X
Benzidine.....			X
Benzo(a) anthracene.....	X		X
Benzo(a) pyrene.....	X	X	X
Beryllium.....			X
Bis(2-ethylhexyl) phthalate.....	X	X	X
Cadmium.....	X	X	X
Carbon tetrachloride.....			X
Chlordane.....	X	X	X
Chlorinated dibenzodioxins.....			X
Chlorinated dibenzofurans.....			X
Chloroform.....			X
Chromium.....	X	X	X
Cobalt.....	X	X	
Copper.....	X	X	X
Cyanide.....	X	X	X
DDT/DDD/DDE.....	X	X	X
3,3'-Dichlorobenzidine.....			
2,4-Dichlorophenoxy-acetic acid.....		X	
Dimethylnitrosamine.....	X		
Fluoride.....	X		
Heptachlor.....	X		X
Hexachlorobenzene.....	X		
Hexachlorobutadiene.....	X		
Iron.....	X		
Lead.....	X	X	X
Lindane.....	X	X	X
Malathion.....		X	
Mercury.....	X	X	X
Methylene bis(2-chloroaniline).....	X		X
Methylene chloride.....		X	
Methylethyl ketone.....		X	
Molybdenum.....	X	X	
Nickel.....	X	X	X
PCBs.....	X	X	X
Pentachlorophenol.....	X		X
Phenanthrene.....		X	X
Phenol.....			X
Selenium.....	X		
Tetrachloroethylene.....			X
Toxaphene.....	X	X	X
Trichloroethylene.....	X		X
Trichlorophenol.....			X
Tricresol phosphate.....	X		
Vinyl chloride.....			X
Zinc.....	X	X	X

Environmental Profiles

During 1984 and 1985, the Agency collected data and information from published scientific reports on the toxicity, persistence, means of transport, and environmental fate of these 50 pollutants. EPA also developed information on their occurrence and concentration in sewage sludge by analyzing the sludge of 43 to 45 publicly owned treatment works (POTWs) (depending on the pollutant) in 40 cities ("Fate of Priority Pollutants in Publicly Owned Treatment Works"—the "40 City Study"—Reference number 36). The sludge data from the "40 City Study" consist of concentrations of 40 pollutants (12 metals, six base neutral organic compounds, six volatile organic compounds, nine pesticides, and seven polychlorinated biphenyls—PCBs) in sludge analyzed from the target POTWs.

Using this information on the occurrence and concentration of pollutants in sewage sludge, their toxicity and persistence, the pathways by which the pollutants travel through the environment to a receptor organism (plant, animal, or human), the mechanisms that transport or bind the pollutants in the pathway, and the effects of the pollutants on the target organism, EPA made a preliminary assessment of the likelihood that each pollutant would adversely affect human health or the environment. For this analysis, EPA relied on simple screening models and calculations to predict the concentration of a pollutant that would occur in surface or ground water, soil, air, or food. EPA then compared the predicted concentration with an Agency human health criterion, such as a drinking water standard promulgated under the Safe Drinking Water Act, to determine whether the pollutant could be expected to have an adverse effect on human health. For purposes of this initial screening, EPA assumed conditions that would maximize the pollutant exposure of an individual, animal, or a plant, as well as the worst possible pollutant-related effects.

Based on the factors previously listed (concentration, toxicity, persistence, etc.), EPA "scored" each pollutant and ranked them for more rigorous analysis. EPA excluded two categories of pollutants for further evaluation. First, EPA excluded pollutants which, then compared to a simple index, presented no risk to human health or the environment at the highest concentration that the Agency found in the "40 City Study" or in other available data bases. Second, EPA deferred consideration of pollutants for which

there were no EPA human health criteria or there were insufficient data.

Information on each pollutant, the simple screening models and calculations used to describe the pollutant's path through the environment, and the indices used to evaluate the pollutants are compiled in an "environmental profile" for each pollutant. The summary of the environmental profiles is listed as Reference number 41 in Part XIII of the preamble.

Table III-2 shows the pollutants EPA did not analyze further because the pollutant did not exceed an EPA human health or environmental criterion at the highest concentrations shown. The Agency invites commenters to submit any municipal sewage sludge data, that shows higher concentrations of the pollutant than those shown in the Table III-2. In addition, the Agency would like any documented evidence which would contradict the Agency's conclusion that, at the concentrations shown in Table III-2, these pollutants would not cause adverse human health or environmental effects. The pollutants listed in Table III-2 are included in the list of pollutants for which eligible POTWs, complying with the requirements in Part 503, may, under 40 CFR Part 403, apply for authorization to grant removal credits to their industrial dischargers (see Table 12 in § 503.72).

TABLE III-2.—POLLUTANTS THAT WERE EVALUATED AND FOUND NOT TO INTERFERE WITH SEWAGE SLUDGE USE OR DISPOSAL

Pollutants	Disposal practice (concentration)
Chlordane.....	Monofill over Class II, III ground water (12 mg/kg).
Chromium.....	Monofill over Class II, III ground water (1,499.7 mg/kg).
Copper.....	Incineration (1,427 mg/kg).
Cyanide ¹	Land Application, Distribution and Marketing, Monofill (2,686.6 mg/kg).
Dimethyl nitrosamine ¹	Distribution and Marketing (2.55 mg/kg).
2,4-Dichlorophenoxyacetic acid.....	Monofill (7.16 mg/kg).
Fluoride ¹	Land Application, Distribution and Marketing (738.7 mg/kg).
Heptachlor.....	Incineration (0.09 mg/kg).
Iron ¹	Land Application, Distribution and Marketing (8,700 mg/kg).

TABLE III-2.—POLLUTANTS THAT WERE EVALUATED AND FOUND NOT TO INTERFERE WITH SEWAGE SLUDGE USE OR DISPOSAL—Continued

Pollutants	Disposal practice (concentration)
Malathion.....	Monofill (0.63 mg/kg).
Molybdenum.....	Monofill (40 mg/kg).
Nickel.....	Monofill over Class II, III ground water (662.7 mg/kg).
Pentachlorophenol.....	Land Application, Distribution and Marketing (30.43 mg/kg).
Phenol.....	Monofill (82.06 mg/kg).
Selenium.....	Monofill, Incineration (4.85 mg/kg).
Tetrachloroethylene ¹	Distribution and Marketing (13.07 mg/kg).
Zinc.....	Monofill, Incineration (4,580 mg/kg).

¹ Exposure assessment models were used in making the determination that these pollutants, at the concentrations shown, do not interfere with the disposal of sewage sludge.

Table III-3 shows the pollutants for which a lack of data precludes the Agency from proposing numerical limits at this time. The Agency also solicits information from commenters on these pollutants in order to evaluate them for future rulemaking proceedings.

TABLE III-3.—POLLUTANTS DEFERRED BECAUSE OF INSUFFICIENT DATA

Pollutants	Disposal practice
Benzo(a) anthracene.....	Land application, distribution and marketing, incineration.
Bis(2-ethylhexyl) phthalate.....	Distribution and marketing.
Chlorinated dibenzodioxins.....	Land application, distribution and marketing, monofills.
Chlorinated dibenzofurans.....	Land application, distribution and marketing, monofills.
Cobalt.....	Land application, distribution and marketing, monofills.
Methylene bis (2-chloroaniline).....	Land application, distribution and marketing.
Methylate chloride.....	Land application, distribution and marketing, monofills.
Methylene ketone.....	Monofills.
Pentachlorophenol.....	Land application, distribution and marketing.
Phenanthrene.....	Monofills, incineration.
Tricresol phosphate.....	Land application, distribution and marketing.
Vinyl Chloride.....	Incineration.

Recently, the Agency established

human health criteria for methylene chloride and methylethyl ketone. Therefore, these two pollutants are likely to be included on a list of pollutants to be considered for future rulemaking proceedings.

When EPA initiated these pollutant assessments in 1984, the Agency did not include dioxin as a pollutant which it evaluated for this rule. At that time, EPA lacked the data required to assess numerical limitations for dioxin in sludge. Adequate data were not available on the levels of dioxin or its pervasiveness in sewage sludge.

The Agency did not analyze sludge for dioxins as part of the "40 City Study" because, at the time the samples were collected (1979-1980), methodologies did not exist for analyzing trace quantities (parts per trillion) of dioxins in sewage sludge. Because better analytical methods now exist, the Agency is collecting sewage sludge samples for dioxins analyses as part of the National Sewage Sludge Survey (see discussion later in this part of the preamble).

When the analyses of the sewage sludge samples are complete, EPA will use the National Sewage Sludge Survey data and recent scientific studies to propose numerical limits for dioxins. In the interim, as explained later in the preamble, the Agency is limiting the emission of dioxins from sewage sludge incinerators by proposing a limit on total hydrocarbons.

Table III-4 lists the 28 pollutants for which the Agency is proposing numerical limits when a particular method of use or disposal is employed. The pollutants in Table III-4 will be eligible for removal credits. In addition to the pollutants listed in Table III-2 and Table III-4, all organic pollutants for which categorical standards have been promulgated by the Agency and for which the Agency has developed numerical limits will also be eligible for removal credits if the sewage sludge is disposed of by incineration. The rationale for this approach is discussed in connection with Subpart H of the rule (§§ 503.70 through 503.72) in Part IX of the preamble.

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TABLE III-4

POLLUTANTS FOR WHICH SPECIFIC NUMERICAL LIMITS ARE PROPOSED

Pollutants	LA	D & M	MF	SD	I
Aldrin	X	X			
Arsenic	X	X	X	X	X
Benzene			X	X	
Benzo(a) pyrene	X	X	X	X	
Beryllium					X
Bis (2- ethyl - hexyl)- phthalate			X	X	
Cadmium	X	X	X	X	X
Chlordane	X	X	X	X	
Chromium	X	X			X
Copper	X	X	X	X	
DDD, DDE, DDT	X	X	X	X	
Dieldrin	X	X			
Dimethyl nitrosamine	X		X	X	
Heptachlor	X	X			
Hexachlo- robenzene	X	X			
Hexachlo- robuta- diene	X	X			
Lead	X	X	X	X	X

Pollutants	LA	D & M	MF	SD	I
Lindane	X	X	X	X	
Mercury	X	X	X	X	X
Molybdenum	X				
Nickel	X	X	X	X	X
PCB	X	X	X	X	
Selenium	X	X			
Toxaphene	X	X	X	X	
Trichloro-ethylene	X		X	X	
Total hydrocarbons ¹					X
Zinc	X	X			
	25	22	18	18	8

¹Total hydrocarbon emissions encompass all organic compounds in the emissions of an incinerator

KEY:

LA refers to land application
D & M refers to distribution and marketing
MF refers to sludge-only landfill (monofill)
SD refers to surface disposal
I refers to incineration

Use Of The "40 City Study" Data Base

As discussed earlier in this part, the Agency relied on the "40 City Study" data as the primary source of information on the pollutant concentrations in municipal sewage sludge. At this time, the "40 City Study" provides the most comprehensive and best documented nationwide data on the concentration of pollutants in sewage sludge.

EPA recognizes several deficiencies in using the "40 City Study" data. Key among them is the fact that data on final processed sewage sludge is generally not available from the "40 City Study." The Study was designed not to assess the quality of the sewage sludge leaving a POTW, but to determine the fate of section 307(a)(1) priority toxic pollutants entering the POTW. Moreover, some sludge samples were taken at points within the POTW prior to final sewage sludge processing. However, the Study did include information that enabled the Agency to estimate the final dry weight of pollutants in the sewage sludge leaving the POTW.

Another deficiency of the "40 City Study" is that the data were collected in 1979 and in 1980. At that time, analytical methods for measuring organic pollutant concentrations in materials with high suspended solids content were in their infancy. Today, the analytical methods are far more precise and analyses of materials with high suspended solids content are conducted routinely by many laboratories.

A third deficiency in using the "40 City Study" data is that the data may not reflect the current sludge quality. The data were collected prior to the implementation of many pretreatment programs. In cities where pretreatment programs have been implemented, particularly for metals, the concentrations of metals in sewage sludge may be lower than those shown in the "40 City Study". On the other hand, treatment works may find that their sewage sludge contains higher concentrations of organic pollutants because more organic wastes are discharged into municipal sewers as limits are imposed on the disposal of liquid hazardous wastes.

Although other data sources of sewage sludge quality are available, these other data sources are also deficient. EPA has been unable to use these for a number of reasons. Some data were drawn from too narrow a geographic area or were drawn from POTWs of a particular size. Frequently, these data were not collected systematically and different sampling and analytical protocols were used in

the same survey. In addition, many of these other data were collected prior to the "40 City Study" data.

EPA believes that based on currently available information, the "40 City Study" data are the appropriate data on which to base its proposal. Although these data were obtained nearly ten years ago, analyses of recent data submitted by the Association of Metropolitan Sewerage Agencies suggest that the "40 City Study" data, particularly for metals, provide a reasonable basis for developing a proposal (see Reference number 36). However, EPA believes that the "40 City Study" data need to be supplemented to support the final regulation. Therefore, EPA is conducting a National Sewage Sludge Survey to provide a current and a reliable data base that will be used to set pollutant limits for a limited number of practices, to better assess the risks of sewage sludge disposal practices, and to evaluate the impact of the rule. The data base will also be used in developing a list of pollutants from which the Agency will select additional pollutants for further analyses and potential regulation under section 405(d) of the CWA.

The results from the National Sewage Sludge Survey are necessary for a number of essential analyses required before promulgation of the final regulation. In establishing numerical limits, the Agency needs the pollutant concentration data from the National Sewage Sludge Survey to determine the level of risk posed by current sludge quality and current use or disposal methods. EPA must also have the data from the Survey to test the reasonableness of its analyses and regulatory approach. Some areas of concern include the accuracy of anticipated risks and analyzed characteristics of increased incidence of disease in proximity to particular use or disposal methods. This information will assist the Agency in further evaluating today's regulatory approach.

In addition, as will be explained later in the preamble, the Agency is proposing to use current sludge quality as the basis of the numerical limits when sewage sludge is applied to non-agricultural land and when sewage sludge is disposed of on surface disposal sites because insignificant adverse health impacts are anticipated from these use and disposal methods. The National Sewage Sludge Survey may show that other use or disposal methods have a similar insignificant impact. In that case, the Agency may conclude that the numerical limits for other use of disposal methods should be based on current sludge quality.

The results of the Survey will also be used to assess the potential shifts among the various use or disposal methods as a result of today's proposal. The effect of today's proposal is an important element in determining how to implement the regulation. For instance, if there is likely to be only a slight impact from a particular numerical limitation, immediate implementation may be appropriate. If, on the other hand, wide shifts in current methods of use or disposal are anticipated from the numerical limits, it might be appropriate to assist the POTWs in the development of more stringent pretreatment limits for their industrial dischargers or in the adoption of alternative use or disposal methods.

In collecting data for the survey, EPA is sending a questionnaire to a random, stratified sample of 479 POTWs employing secondary or advanced wastewater treatment processes and is sampling the sludge from a subset of the 479 POTWs receiving a questionnaire. The statistical sample is designed to produce a statistically unbiased national estimate of the volume of POTW-generated sewage sludge, the frequency with which particular pollutants occur in sewage sludge, and the concentrations of the pollutants found in the sewage sludge analyzed. The sample is also constructed to allow separate analysis by four POTW size groups as measured by wastewater flow (less than 1 million gallons per day—mgd, between 1 and 10 mgd, between 10 and 100 mgd, and over 100 mgd) and by five use or disposal practices (land application, distribution and marketing, monofills, incineration, and others, primarily municipal landfills).

An EPA representative is taking the sample and contract laboratories are analyzing each sample. The sampling protocol is based on the procedures in EPA's protocols for sampling and analysis (see Reference numbers 51 and 55). The protocol includes procedures for selecting and documenting the sampling point, handling and preservation, labeling, transmitting the sample to the laboratory, and chain-of-custody.

The suite of 400 pollutants to be analyzed include those pollutants on the CWA section 307(a) list of pollutants, those toxic compounds highlighted in the Domestic Sewage Study, and those Resource Conservation and Recovery Act Appendix VIII compounds for which analytical methods have been developed. The chemical analysis of the sludge samples will be performed using standard EPA methods for conventional and organic pollutants and Method 8290 for dioxin developed by EPA's Las

Vegas, Nevada Environmental Monitoring Systems Laboratory. These protocols specify sewage sludge matrix clean up by gel permeation chromatography followed by the use of gas chromatography-mass spectrometry (GC/MS) together with isotope dilution. These methods provide better performance in terms of detection, precision, and accuracy than other GC/MS procedures. Further information on the National Sewage Sludge Survey, including the sampling protocols and the questionnaire may be found in the supporting statement for the survey (see Reference number 81).

When completed, all survey reports and other analyses based on survey data will be placed in the Regulatory Record in a masked form to protect any information claimed to be confidential. EPA will notice the availability of the data and make it available to the public. Depending on the results of the analyses, the Agency may re-open the comment period on today's proposal.

Coverage of the Proposal

Today's proposal covers those pollutants and practices for which sufficient information is available for the Agency to establish numerical limits, management practices, and other requirements that will protect public health and the environment from reasonably anticipated adverse effects of each pollutant. The Agency recognizes that today's proposal is not comprehensive. The rule does not establish numerical limits for all pollutants or for radioactive sludge that may interfere with the use or disposal of sewage sludge.

Section 405(d) of the CWA specifically contemplates a phase approach to establishing numerical limits for sludge pollutants. Moreover, section 405(d)(2)(D) of the CWA also provides that "[F]rom time to time, but not less often than every 2 years, the Administrator shall review the regulation * * * for the purpose of identifying additional toxic pollutants and promulgating regulations for such pollutants * * *". The National Sewage Sludge Survey will be used by the Agency to identify additional pollutants in sewage sludge that may interfere with the safe use or disposal of the sludge. From this list of pollutants, the Agency will initiate rulemaking processes to increase the coverage of this Part 503 rule. EPA is today proposing the regulation called for by section 405(d)(2)(A). Additional pollutants not identified at this time will be regulated in the second phase required by section 405(d)(2)(B).

The first step in the process is to determine if there is an EPA-derived human health criterion for the pollutant. For those pollutants that have human health criteria, the Agency will gather sufficient data to evaluate the pollutants using exposure assessment models and analytical techniques EPA has developed for assessing the aggregate effects. The analytical techniques are discussed in the next two parts of the preamble. If sufficient data are available on a pollutant, the Agency will use the exposure assessment models to make a determination as to whether the pollutant may interfere with the safe use and disposal of sewage sludge at the concentrations shown in the National Sewage Sludge Survey. If the pollutant does not pose an unreasonable human health or environmental risk, the Agency would propose that the pollutant be added to the list of pollutants eligible for removal credits. If, based on the exposure assessment models, the pollutant presents an unreasonable human health or environmental risk, the Agency would propose numerical limits for the pollutant appropriate to a particular method of use or disposal. Where the Agency has not developed a human health criterion for a pollutant, EPA would begin to develop the data and information necessary to establish a human health criterion for the pollutant, consistent with the need for and priority of other pollutants. The process is time-consuming particularly if the Agency also must develop a human health criterion.

The Agency is soliciting public comment on the way in which it will expand the coverage of pollutants included in the Part 503 rule. If there are pollutants that are not covered in this rule that should receive immediate attention in future rulemakings, such as dioxins and asbestos, the Agency will consider any suggestions that are offered.

PART IV: EXPOSURE ASSESSMENT MODELS

Introduction

EPA adapted existing models and developed new models to determine the concentration of sludge-borne pollutants that may be applied to the land, placed in sludge-only landfills (monofills), or incinerated without exceeding human health or environmental criteria (Reference numbers 48, 56, and 66). The models simulate the movement of pollutants into and through the environment with a series of mathematical equations or algorithms. These equations or algorithms link the pollutant disposal or release rates to the

concentration of the pollutant that moves into the air, water, or terrestrial medium and, subsequently, reaches a target organism (i.e., plants, animals, and humans). Each algorithm in a model represents one exposure pathway through which sludge-borne pollutants enter and pass through or effect an environmental medium.

The target organism is a most exposed individual, plant, or animal (MEI) that remains for an extended period of time at or adjacent to the site where the maximum exposure occurs. The models calculate individual pollutant exposure, relying on certain fixed assumptions about the exposure route. For example, the models assume inhalation of 20 cubic meters of air per day and an average individual diet and two liters of drinking water per day. Other assumptions included in the models are the location of the MEI relative to the site where the sludge is placed and the source of food in the diet of the MEI. The same duration of exposure is used as that assumed in developing the applicable human health or environmental toxicological criteria (allowable doses). For example, where cancer risks are evaluated, the MEI is assumed to be continuously exposed for 70 years.

The Agency's Science Advisory Board (SAB) reviewed the models but not the specific values included in the model algorithms or the way in which the models were used to calculate the proposed numerical limits. The major comments of the Board are discussed in conjunction with each of the models below. The complete report of the SAB is listed in Part XIII of the preamble.

The Agency selected the appropriate numerical values for the parameters in the algorithms of each model, translated the models into computer programs, and, where appropriate, used the models to calculate the numerical limits in today's proposals. The following sections discuss the models that the Agency used to assess the concentrations of the pollutants reaching the MEI when sewage sludge is (1) applied to the land used in the production of agricultural commodities, (2) distributed and marketed, (3) landfilled in monofills, and (4) incinerated.

In addition, the Agency is developing an exposure assessment model to be used in determining the fate of pathogenic organisms in the environment and in determining the concentration of pollutants that may reach target organisms when sewage sludge surface disposal site is the method of disposal. When the models are completed, the Agency will make

them available for public review and comment.

The following discussion provides an overview of the concepts EPA used in developing the models. In this discussion and in other parts of the preamble, EPA points out particular areas of uncertainty on which the Agency would like the public to focus its attention and comments. Full descriptions of the models are presented in the Technical Support Documents prepared in conjunction with today's proposal (Reference numbers 56, 57, and 58).

During the comment period, EPA will solicit the assistance of experts in the review of the scientific and technical bases of the proposal. The experts may include the Agency's Science Advisory Board, the W-170 Committee, representatives of academia, and/or scientific/technical bodies with expertise in the areas covered by this proposal.

Application Of Sewage Sludge To Agricultural Lands

To determine the concentration of a pollutant reaching a target organism when sewage sludge is used in the production of agricultural commodities, the mathematical models consider the likely exposure to the target organism from soil, food, air, surface water, and ground water. The pathways included in the model are identified in Table IV-1.

TABLE IV-1.—PATHWAYS MODELED FOR THE LAND APPLICATION OF SEWAGE SLUDGE

Pathways	Description
1: Sludge-soil-plant-human.	Consumers in regions heavily affected by landslides spreading of sludge.
1F: Sludge-soil-plant-human.	Farmland converted to residential home garden use in 5 years.
2F: Sludge-soil-human.	Farmland converted to residential use in 5 years with children ingesting soil.
3: Sludge-soil-plant-animals-human.	Farm households producing a major portion of their dietary consumption of animal products on sludge-amended soil.
4: Sludge-soil-animal.	Farm households consuming livestock that ingests soil while grazing.
5: Sludge-soil-plant-animal.	Livestock ingesting food or feed crops.
6: Sludge-soil-animal.	Grazing livestock ingesting soil.
7: Sludge-soil-plant.	Crops grown on sludge-amended soil.
8: Sludge-soil-soil biota.	Soil biota living in sludge-amended soil.
9: Sludge-soil-soil biota-predator.	Animals eating soil biota.
10: Sludge-soil-airborne dust-human.	Tractor operator exposed to dust.

TABLE IV-1.—PATHWAYS MODELED FOR THE LAND APPLICATION OF SEWAGE SLUDGE—Continued

Pathways	Description
11: Sludge-soil-surface water.	Water Quality Criteria for the receiving water.
12A: Sludge-soil-air-human.	Farm households breathing fumes from any volatile pollutants in sludge.
12W: Sludge-soil-ground water-human.	Farm households drinking water from wells.

In assessing the amount of pollutant exposure that an individual receives from food, the Agency assumed that the MEI obtains a substantial portion of his diet from agricultural crops that are grown or from animals that are raised on sludge-amended soils.

Approximately 2.5 percent, on an average, of the MEI's vegetables, grains, and animal products is assumed to be raised on sludge-amended soils depending on the pathway. This compares to the 0.025 percent for an average American consumer. In assessing the amount of pollutant exposure from inhalation and from ingestion of water or soil, the Agency assumed the MEI resides on the property receiving the sludge.

All pathways were evaluated for at least some of the pollutants in Table III-4. Limitations in available data prevented the Agency from evaluating each pollutant in every pathway. "The Technical Support Document for Land Application" (Reference Number 57) includes a matrix that shows the pollutant loading rates for each pathway. That pathway for a pollutant which results in the most stringent numerical limits is the pathway selected by the Agency for assessing the exposure to the MEI and for establishing the proposed numerical limits. That pathway is referred to as the "critical pathway".

All pathways, except those involving ground water and air (Pathways 12W and 12A), assume the mixing of sludge with 15 centimeters (i.e., 6-inch plow depth) of the surface soil layer (having a mass of 2 million kilograms per hectare). This allows conversions between pollutant concentrations in soil (in mass of contaminant per unit mass of soil) and pollutant loadings rate (in mass of contaminant per hectare of land).

After first determining the pollutant concentration in the soil that would be allowed (i.e., the maximum pollutant concentration in the soil that, when taken up by a plant and eaten, does not produce undue risk) for a particular pathway, the model determines the

allowable pollutant loading limit in one of two ways. For metals, the model determines the cumulative pollutant loading limit, the total quantity of metal consistent with no undue risk. This equals the allowable pollutants concentration in the soil multiplied by the mass of the soil in the top 15 centimeters of a hectare of land. The Agency assumed that metals remain in the sludge-soil matrix and that, over time, metals do not become more biologically available to plants.

For organics, the model determines an annual pollutant loading limit (in kilograms per hectare per year) by considering the rate of loss or decay. The model assumes that the quantity of an organic pollutant lost per year is directly proportional to the quantity present. With steady annual applications, the concentration of a pollutant gradually approaches a plateau at which the quantity lost each year equals the quantity applied. The annual pollutant loading rate is determined such that the concentration levels off at the allowable soil concentration when sewage sludge is applied over a long period of time.

For the plant toxicity and soil biota pathways (Pathways 7 and 8), the Agency specified an allowable pollutant concentration in the soil, which is the concentration that will not cause plant and soil biota toxicity. This value was derived from scientific data relating plant and soil biota toxicity to soil contaminant levels. Thus, the allowable pollutant load for these pathways is that load which, after dilution with 15 centimeters of soil, does not exceed the threshold value.

For the pathways intended to protect livestock from toxicity (Pathways 5 and 6), the Agency evaluated livestock toxicity data to estimate the maximum allowable pollutant concentration in the feed or sludge-soil mixture that would not be toxic to an animal. Livestock includes all herbivores found in the agricultural or forest setting, including domesticated grazing animals, birds, rodents, etc. The Agency assumed that the livestock only consumed feed grown on sludge-amended pastures. In the pathway involving the uptake of a pollutant from the soil into the feed crop (Pathway 5), the allowable pollutant concentration in the soil is the quotient of the allowable pollutant concentration in the feed and the estimated plant uptake factor (partition coefficient).

In the pathway involving direct ingestion of the contaminated soil by an animal (Pathway 6), eight percent of the animal's diet is assumed to be sludge-amended soil that is incidentally

ingested by livestock while grazing. Here, the allowable pollutant concentration in the soil is the allowable feed concentration divided by the fraction of the diet that is soil.

For the pathway involving predators of soil biota (Pathway 9), the Agency evaluated toxicity data to estimate a pollutant concentration in soil biota that would not be toxic to birds. For this pathway, the predator's diet is assumed to be composed entirely of soil biota from the sludge-amended soil. The allowable pollutant concentration in the soil is the quotient of the allowable pollutant concentration in soil biota and an estimated soil biota uptake factor (or partition coefficient).

The surface run-off pathway (Pathway 11) is intended to protect beneficial use of surface waters by determining the pollutant concentration in the soil that would not exceed a Water Quality Criterion for a pollutant if the soil enters a relatively small stream. The rate at which the soil enters the stream is based on the Universal Soil Loss Equation and a sediment delivery ratio. Water Quality Criteria are designed to protect human health, assuming exposure through consumption or drinking water and resident fish, and to protect aquatic life. The pathway was not a critical pathway and therefore was not used as a basis of the numerical limits for any of the pollutants.

In contrast to the pathways described above, the majority of the pathways are intended to protect only human health. These include Pathways 1F, 2F, 3, 4, 10, 12A, and 12W, which are discussed below in ascending order of complexity.

Pathway 10 evaluates the potential for adverse effects from dust inhalation by a tractor driver during tillage operations. The pollutant concentration in the soil is not permitted to exceed the National Institute of Occupational Safety and Health (NIOSH) workplace air quality criteria if significant quantities of soil become airborne. Using the assumption that the total airborne dust does not exceed the NIOSH criterion, this pathway is not a limiting pathway for any pollutant.

The dust inhalation pathway is the only pathway that uses NIOSH criteria. For all other human exposure pathways, the maximum allowable intake is based on the following EPA health effects criteria: a reference dose (RfD) for non-carcinogens; a risk specific dose for carcinogens; a daily dietary intake derived from the drinking water standard; or a drinking water standard (maximum contaminant level—MCL).

The Agency evaluated the inadvertent ingestion of soil by children in Pathway 2F. It is assumed that children would

come into contact with the sludge-amended soil when the land was converted to residential use 5 years after the final application of sludge. It is also assumed that a sludge-soil mixture is ingested at a rate of 0.1 gram per day for 5 years. The allowable pollutant concentration in the soil is the quotient rate of pollutant ingestion that will not adversely affect a child and the rate of soil ingestion.

The Agency evaluated human exposure from the consumption of plants grown on sludge-amended soil in Pathways 1 and 1F. Both pathways determine an allowable pollutant concentration in the soil based on (1) the allowable intake; (2) an individual's typical daily consumption of several classes of sludge-grown vegetables, legumes, and grains; (3) the fraction of different crops assumed to be grown on sludge-amended soil; and (4) the uptake of a pollutant by each class of crop (uptake coefficient). Pathway 1 is intended to correspond to the exposure of a consumer in a region where sludge is used widely in the production of agricultural crops. It assumes that 2.5 percent of a consumer's intake of grains, vegetables, potatoes, legumes, and garden fruits comes from sludge-amended soil. Pathway 1F involves a home garden scenario, with as much as 60 percent of a consumer's intake coming from grains, vegetables, and potatoes grown on sludge-amended soil. It is assumed that the agricultural land is converted to residential home garden use 5 years after the final application of sludge. Essentially the same partitioning of a pollutant between soil and crop is used for both pathways. The numerical results of modeling these pathways indicate that the home garden pathway (1F) results in more stringent numerical limits than the regional consumer pathway (1) for all pollutants evaluated.

The Agency evaluated human exposure from the consumption of animal products in Pathways 3 and 4. Both assume that approximately 40 percent of the meat, dairy products, and eggs consumed by a farm household is produced on sludge-amended soil.

The first animal product pathway (Pathway 3) assumes that the pollutant reaches the animal through feed crops. The allowable pollutant concentration in the soil is the quotient of the allowable pollutant concentration in the feed crop and a crop uptake factor (partition coefficient). The allowable pollutant concentration in the feed crop is determined from (1) the human intake that can be allowed without causing undue risk, (2) typical consumption rates of various classes of animal products, (3) the percentage of each class of

animal product assumed to be raised on sludge-amended soil, and (4) a set of uptake factors relating the pollutant concentration in each animal product to the pollutant concentration in the feed consumed by the animal.

The other animal product pathway (Pathway 4) only involves animals that graze. This pathway assumes that eight percent of the grazing animal's diet consists of a sludge-soil mixture. The allowable pollutant concentration in the soil is the allowable feed concentration divided by the fraction of the animal's diet that is sludge-amended soil. The allowable feed concentration is determined as in Pathway 3, with some differences in the fraction of each food class assumed to be grown on sludge-amended soil.

In model Pathway 12A, the Agency evaluated the exposure of a farm household inhaling vapors of any volatile pollutants that may be in the sludge when it is applied to the land. This pathway is considered for six chemicals: benzo(a)pyrene, bis(2-ethylhexyl)phthalate, chlordane, DDT, dimethylnitrosamine, and polychlorinated biphenyls. The Agency did not apply the vapor pathway to benzene, lindane, trichloroethylene, or toxaphene because these chemicals would volatilize in wastewater treatment processes before sludge disposal—either during wastewater aeration or during sludge processing and de-watering. In addition, the vapor pathway was not applied to relatively non-volatile metals.

The vapor pathway assumes that the total amount of chemical spread in each year would vaporize during that year. Thus, the allowable annual pollutant loading rate is equal to the flux (mass of chemical per unit area per unit time) that may be allowed to enter the atmosphere without exceeding the allowable pollutant concentration in the air. This concentration corresponds to the RfD, risk specific dose, or an MCL. A plume model is used to relate the flux to the resulting pollutant concentration in the air. The allowable flux is determined by (1) the allowable pollutant concentration in the air, (2) the size of the sludge application site, (3) the assumed distance of an individual from the site where the air concentration must be attained, (4) the wind speed, and (5) the degree of atmospheric mixing. The wind direction is assumed never to change, so that the MEI always remains in the center line of the plume.

In model Pathway 12W, the Agency evaluated the exposure of individuals who would obtain their drinking water from ground water located directly

below a field to which sludge had been applied. The leachate concentration formed in the sludge-amended soil layer is related by a partition coefficient to the pollutant concentration in the soil. In moving down through the unsaturated zone, the peak leachate concentration is reduced by the modeled processes of vertical dispersion (primarily caused by detention of sorbed pollutant), chemical degradation, and metal precipitation. The unsaturated zone transport model, CHAIN, and (for metals) the geochemical model, MINTEQA, are used here. These models are described more fully in the section on monofill models.

The allowable pollutant loading rate is thus determined from the MCL (that must be met at the ground water interface with no allowance for dilution), the rate of decay of a pollutant, and other factors that affect either the time period for decay or the dispersive smoothing of the peak concentration. These other factors include the recharge or infiltration rate, hydraulic characteristics of the soil, depth to ground water, and the chemical partition coefficient. For some metals, the net ground water electromotive potential (Eh) and ground water pH influence precipitation.

Distribution and Marketing

The Agency derived the numerical limits for the distribution and marketing (D&M) of sewage sludge in a manner analogous to land application. Fewer pathways were considered, however, because the Agency assumed that

animals would not be raised on the sludge-amended soil and that the sludge-amended area would not be large enough to affect ground water or the air above the site. The pathways evaluated are shown in Table IV-2, and were described in the previous section.

TABLE IV-2.—PATHWAYS MODELED FOR D&M

Pathway	Description
1: Sludge-soil-plant-human.	Residential home garden.
2: Sludge-soil-human.....	Child's indigestion of soil.
7: Sludge-soil-plant.....	Phytotoxicity.
8: Sludge-soil-soil biota.....	Soil biota toxicity.
9: Sludge-soil-soil biota-predator.	Animals eating soil biota.
11: Sludge-soil-surface water.	Water quality criteria for the receiving water.

For metals, the D&M pollutant loading limits are identical to the land application rates for the human exposure pathways involving home garden crops and soil consumption (i.e., D&M Pathways 1 and 2 are identical to previously described land application Pathways 1F and 2F, respectively). For organics, the limits for these pathways are slightly more stringent in D&M than in land application because D&M assumes immediate residential use whereas in land application there is a 5-year period between the final sludge application and residential use, allowing for the decay of organic pollutants.

The D&M model pathways evaluating plant toxicity, soil biota, and avian

predators (Pathways 7, 8, and 9, respectively) are identical to the corresponding land application pathways for all pollutants. The D&M model algorithm for surface runoff (Pathway 11) produced slightly less stringent limits than land application because of minor differences in assumptions about the size of the affected area.

Technical Uncertainties and Issues in the Exposure Assessment Models for Land Application and D&M

The models used in assessing the risks and in developing the proposed limits for the land application of sludge involve a number of uncertainties and technical issues. The land application model is a complex model made up of a large number of pathways and parameters. This section identifies the key technical points, parameters, and assumptions on which the Agency is particularly interested in receiving comment. The "Technical Support Document on Land Application" (Reference number 57) contains a detailed discussion of the derivation of the model assumptions and parameter values. A more detailed discussion of many uncertainties in the modeling framework can be found in the comments of the SAB. Table IV-3 indicates the land application and D&M model parameters and assumptions that the Agency believes are most important and therefore most worthy of public review and comment.

TABLE IV-3 KEY PARAMETERS AND ASSUMPTIONS FOR AGRICULTURAL LAND APPLICATION AND D & M PATHWAYS

Pathway ¹	Pollutants of greatest concern ¹	Key parameters and assumptions
1 Sludge-Soil-Plant-Human.....	None.....	None.
1F Sludge-Soil-Plant-Human.....	Cd ¹ ; possibly HCB, Pb.	Plant uptake; assume metal bioavailability unchanging over time; organic pollutant's decay rate and time period for decay; percentage of diet affected; toxicity to humans.
2F Sludge-Soil-Human.....	None.....	Soil ingestion rates.
3 Sludge-Soil-Plant-Animal-Human.....	HCB ¹ ; possibly DDT ¹ , PCB ¹ , Toxaphene.	Plant uptake; organic pollutant's rate; percentage of diet affected; toxicity to humans.
4 Sludge-Soil-Animal-Human.....	None.....	Mixing with 15 cm soil.
5 Sludge-Soil-Plant-Animal.....	Se ¹ , Mo ¹ , Cd, Zn.	Plant uptake; assume metal bioavailability unchanging over time; background (Mo) concentration in feed; toxicity to livestock.
6 Sludge-Soil-Animal.....	None.....	Mixing with 15 cm soil.
7 Sludge-Soil-Plant.....	Cu ¹ , Zn ¹ , Ni ¹	Background soil concentration assumes metal bioavailability unchanging over time; toxicity to plants.
8 Sludge-Soil-Soil Biota.....	Cu.....	Toxicity to soil invertebrates.
9 Sludge-Soil-Soil Biota-Predator.....	Pb ¹ , Zn; possibly Aldrin/Dieldrin ¹ .	Uptake rate in soil invertebrates; assume metal bioavailability unchanging over time; toxicity to birds.
10 Sludge-Soil-Airborne Dust-Human.....	None.....	None.
11 Sludge-Soil-Surface Water.....	None.....	None.
12A Sludge-Soil-Air-Human.....	Possibly BaP ¹ , BEHP ¹ , Diethylnitrosamine ¹ .	Assume volatilization more rapid than decay or leaching; wind speed and atmospheric mixing; assume wind direction unchanging; toxicity to humans.

TABLE IV-3 KEY PARAMETERS AND ASSUMPTIONS FOR AGRICULTURAL LAND APPLICATION AND D & M PATHWAYS—Continued

Pathway ¹	Pollutants of greatest concern ¹	Key parameters and assumptions
12W Sludge-Soil Ground Water-Human.....	Cd, TCE ¹ ; possibly Toxaphene ¹	Partition coefficient; organic pollutant's decay rate; soil type; depth to ground water; ground water; ground water Eh, pH; toxicity to humans.

¹ Indicates critical pathway for that pollutant.

Reasonable Worst-Case Assumptions And Parameter Values

As discussed elsewhere in the preamble, the numerical limits are intended to protect individuals, plants, and animals from "reasonably anticipated adverse effects of each pollutant". In some cases, the value for a parameter is based on a worst or a near-worst combination of values (e.g., the toxicity values for plants and animals). In other cases, the value is an average or median value (e.g., the assumed background level of metals in the soil). Stringing together a long series of worst-case parameters and assumptions is not appropriate because there is no reasonable expectation that all worst-case conditions would occur simultaneously in any real situation. It is likewise inappropriate to use only average values since a significant portion of real situations are likely to be worse. Although EPA believes that the proposed models build in an appropriate degree of protection, the Agency is particularly interested in receiving comments on the parameter values used for land application and D&M, especially the plant and animal toxicity values. These values have not been peer reviewed for use in the model. In addition, the Agency is soliciting comments on its assumptions about the rate at which crops absorb a pollutant, soil pH, and background metal concentration.

Soil Incorporation

The Agency assumed that the sludge is incorporated into the top 15 centimeters of the soil. For pathways involving plant absorption of a pollutant, the actual depth of soil incorporation should make relatively little difference, since the mean concentration in the root zone is likely to be more important than the distribution of the pollutant within the root zone. However, for pathways involving direct ingestion of soil, the assumed depth of incorporation has greater importance, as discussed later.

Background Metals In Soil

For metals, the Agency used an estimated nationwide median

concentration for agricultural lands as the background level of metals in soil. In some cases, the background concentration of a metal is a significant fraction of the maximum allowable soil concentration.

The ability of plants to absorb metals in the soil was assumed to be the same as their ability to absorb metals in sewage sludge. If higher background concentrations of metals were assumed, those numerical limits based on plant toxicity would be more stringent for copper, zinc, and nickel. However, in some cases, the higher background concentrations of metals would exceed the allowable pollutant concentration in the soil. The Agency is soliciting additional data and information on the background concentration of metals associated with agricultural soils.

Behavior of Metals

For the terrestrial Pathways 1-9, the Agency assumed that once the metal is applied, it remains on the land indefinitely. No accounting is made for removal by (1) soil erosion, (2) leaching, (3) volatilization, or (4) absorption of the plant and removal of the harvested portion of the plant. The half-life of the upper 15 centimeters of soil is generally on the order of a century. Most metals are expected to leach out of the top 15 centimeters of soil more slowly than they erode from the site. However, the Agency has not evaluated whether this would also be true in the case of selenium and molybdenum. The Agency has not evaluated the losses of metals through volatilization or through crop harvesting. Thus, EPA is uncertain if its assumption that metals remain on the land would make a significant difference in the numerical limits included in today's proposal. The Agency is much more concerned, however, about the potential error in its assumption that the biological availability of metals does not change over time. While the Agency believes that bioavailability may decrease over time, the Agency did not consider its data adequate to determine the extent of such a decrease and, consequently, did not include this as a modeled factor.

Behavior of Organic Contaminants

For organic pollutants, the model calculates an annual pollutant loading rate (in kilograms per hectare, per year—kg/ha/yr). The allowable annual pollutant loading rate is the loading rate that just balances the decay rate of the pollutant (in kg/ha/yr) when the concentration of a pollutant in the soil reaches the allowable pollutant concentration in the soil for the pollutant. Once this balance is achieved, land application may be carried out indefinitely without exceeding the allowable pollutant concentration in the soil. Therefore, the decay rate coefficient for an organic pollutant is a key parameter in determining the allowable annual loading rate for that pollutant. The effect of decay is to reduce the overall amount of the pollutant in the soil. If a high decay rate is assumed, the allowable annual pollutant loading rate is higher than if a low decay rate is assumed. The time period over which sludge is applied to the land is usually not important to the allowable pollutant loading rate, particularly if sludge is applied for more than 10 to 15 years. However, when the Agency estimates a zero decay rate, as it did for DDT, the assumed time period (which varies by pathway) is important in severely limiting the allowable pollutant loading rate.

Uptake by Plants

In calculating the numerical limits, the Agency assumed that the pollutant concentration in crops is linearly related to the pollutant concentration in soil. There is some evidence that pollutant concentrations in crops may tend to level off with repeated sludge applications. EPA's theoretical framework for modeling plant uptake included equations for both linear and non-linear uptake. Although non-linear uptake is considered more realistic, EPA only used linear uptake factors because the Agency lacks sufficient data to generate nonlinear uptake curves. The Agency is soliciting data that could be used in determining the appropriate shape of plant uptake curves.

Ingestion of Soil by Animals

Ingestion of soil by animals is considered in Pathways 4 and 6, for land application. EPA assumed that a relatively large amount of soil would be ingested by grazing animals (around eight percent of the diet), although higher values have sometimes been reported. The Agency is uncertain if the value used is appropriate for long-term exposure and is, thus, seeking comment.

The Agency is also seeking comment on the assumed dilution of sludge with 15 centimeters of soil when the sludge is applied to pastures. Since the sludge applied to pastures is not incorporated into the soil (as it is for row crops), our assumption relies on climatic conditions and biological factors to assure mixing to the 15-centimeter depth. When grazing, animals often pull up shallow roots with the foliage. If the sludge has not been mixed thoroughly with the soil, grazing animals may ingest greater concentrations of a pollutant than those assumed in the model. Consequently, the Agency is considering depths of less than 15 centimeters in the model for pastures and seeks public comment on the appropriate depth that the Agency should use in calculating pollutant limits.

Ingestion of Soil by Humans

Ingestion of soil by young children is evaluated in Pathway 2 for both land application and D&M. The Agency assumed the quantity of soil ingested by children to be 0.1 gram per day. The Agency considers this to be a good estimate of the mean value (Reference number 22). Because all studies of soil ingestion by children are short-term measurements, there is no way to estimate (long-term) time-average soil ingestion by a child either with PICA behavior or who inadvertently ingests soil. The observed variability between children overstates the true variability of long-term exposure.

While the use of an average soil ingestion rate, rather than the use of an ingestion rate associated with a PICA child (0.5–5.0 grams per day) might be construed as under-protective, other factors suggest that the Agency's analysis may be over-protective. First, the entire 0.1 gram of soil ingested per day was assumed to be composed of sludge-amended soil. In real situations, only a portion of the 0.1 gram per day is likely to be from sludge-amended soil. Second, it is unlikely that a child would ingest 0.1 gram of a sludge-soil mixture every day. Third, and possibly most important, the biological availability of sludge-soil-bound pollutants was assumed to be equal to that of the

pollutants in food and drinking water. There is evidence that desorption from the soil particles is a very slow process, generally requiring more time than available to material that is traversing the alimentary canal. Such desorption would have to take place before the contaminant could cross the membranes into the blood stream.

The modeling assumes dilution of the sludge with 15 centimeters soil. EPA has not specifically evaluated the long-term ingestion of pure sludge because the Agency believes that the sludge and soil will be mixed together by natural weathering processes. Therefore, long-term ingestion of 0.1 gram of pure sludge per day is not a reasonable expectation.

Animal Uptake from Feed and Forage Crops

The Agency considered the uptake of pollutants by herbivorous animals from feed or forage (grown on sludge-amended soil) in Pathways 3 and 5 for land application only. The Agency assumed that the pollutant concentration in animal tissues is a linear function of the concentration in the feed, that the animals feed solely on crops or forage grown on sludge-amended soil, and that the bioavailability of the pollutant in the feed is the same as the pure pollutant. EPA is requesting comment on the appropriateness of the values used for the uptake of pollutants by herbivores.

Human Exposure from Diet

The quantity of each of eight food groups in the human diet assumed in the analysis is taken from the Pennington data base for the age and gender group with the highest daily consumption (Reference number 28). While the assumed diet contains an average mix of meat, fruits, legumes, grains, dairy products, etc., the consumption rates are higher than would be expected for a single individual over a lifetime.

Assumptions about diet composition affect pathways differently. A more herbivorous diet would produce greater adverse effects for Pathway 1 (exposure through plants), but less stringent effects in Pathways 3 and 4 (exposure through meat and animal products). A more carnivorous diet would produce the opposite effect.

For today's proposal, the Agency has used the Pennington data base rather than the Tolerance Assessment System (TAS) data base used in pesticide registration actions for calculating the percentage of different food groups in the average adult's diet. The data used to support today's proposal result in slightly more stringent numerical limits than would the TAS diet. The Agency is

considering use of the TAS system data base in calculating the numerical limits in any re-evaluation of today's proposal and in future rulemakings.

More important than the diet composition, however, is the assumption about the percentage of diet from sludge-amended soil. Pathway 1F for land application and Pathway 1 of D&M involve home garden scenarios. They assume that nearly 60 percent of an individual's lifetime consumption of grains, potatoes, and vegetables is grown on sludge-amended soil. The Agency has some data to support the amount of potatoes and vegetables grown in home gardens, but has little data to support the amount of grain grown in home gardens. The Agency is requesting comment on the percentage of home grown food in an MEI's diet.

Land application Pathways 3 and 4 involve scenarios of farm households consuming, over a long period of time, 40 percent of their own meat and animal products raised on sludge-amended soil. The Agency is requesting comment on the appropriateness of this assumption.

Plant and Animal Toxicity

The toxicity of pollutants (particularly metals) to plants and animals, based on Pathways 5, 6, 7, 8, and 9, plays a key role in setting numerical limits. The derivation of the toxicity thresholds for these pathways are discussed in Part VIII of the preamble. Comments on these thresholds would be particularly valuable.

Exposure to Contaminant Vapors

Pathway 12 contains two pathways, ground water ingestion and vapor inhalation. The sum of exposures to the MEI from both routes is not permitted to exceed an exposure equivalent to a MCL, a RfD, or a risk-specific dose.

The vapor pathway assumes that the entire quantity of pollutant applied to the land is vaporized during the ensuing year. This assumption simplifies the analyses and avoids the need to predict the vaporization rate, a process likely to be controlled by the rate of pollutant diffusion through the soil. The Agency has no evidence to support the assumption that certain pollutants are vaporized within a year. Indeed, it suspects that the true rate would be significantly lower. The Agency is requesting comment on the assumed rate of vaporization, particularly for benzo(a)pyrene, bis(2-ethylhexyl)phthalate, and dimethylnitrosamine. The Agency is also soliciting comment on its decision not to evaluate the vaporization of

benzene, lindane, toxaphene, and trichloroethylene.

Once vaporized, the downwind pollutant concentrations are predicted with a plume model. The MEI is assumed always to remain at the centerline of the plume. Parameter values for wind speed and atmospheric mixing are those for the worst combination of circumstances. Consequently, the Agency is uncertain if the construct of the model or the parameter values used in the model are appropriate for assessing long-term exposure.

Ground Water

The ground water model was operated to determine the cumulative load of each pollutant that could be applied to the land without causing the leachate to exceed the MCL (or allowable drinking water concentration) at the interface with the saturated zone or water table. As long as the metal's cumulative limit is not exceeded, the leachate at the ground water interface will not exceed the MCL, whether the entire load is applied at once or spread out over many years. Theoretically, the calculated cumulative limit for this pathway should be valid for a few decades (for the more soluble metals) and up to several centuries (for the less soluble metals). Beyond this time period, however, the cumulative limit could be exceeded without causing the leachate to exceed the MCL, if the pollutant were applied at extremely low rates.

The modeled scenario couples a permeable, sandy loam soil, low in natural organic matter, with a high water table that is one meter below the surface. The Agency is uncertain whether such a scenario is reasonable.

For both metals and organics, one of the key chemical parameters is the partition coefficient (the metal concentration in soil solids divided by the metal concentration in the liquid at equilibrium). The partition coefficients for the metals were rather low compared to other partition coefficients that have been used previously (Reference numbers 10 and 18). Despite these low partition coefficients, however, metal limits for this pathway do not restrict the land application of sludge.

For organics, the other key chemical parameter is the decay rate coefficient. The Agency estimated the decay coefficient for trichloroethylene to be zero. Although trichloroethylene is expected to decay, there is evidence that a major product would be stable vinyl chloride. Vinyl chloride has the same risk as trichloroethylene.

Monofills

EPA evaluated two exposure pathways for sludge monofills: (1) Pollutant infiltration to ground water and subsequent ingestion from drinking water, and (2) vaporization from the fill material and subsequent inhalation. The analysis considers the long-term exposure that an MEI would receive from drinking two liters of ground water per day and from inhaling 20 cubic meters of air per day at the property boundary of the monofill. The Agency calculated the combined water and air exposure to the MEI and compared the combined exposure to a MCL, RfD, or risk specific dose. As described below, the analytical framework for the ground water model has four components: (1) A calculation of contaminated leachate pulse duration, (2) a model of pollutant behavior and movement in the unsaturated zone, (3) an evaluation of metal solubility in ground water, and (4) a model of pollutant behavior and movement in the saturated zone.

The analysis begins with assumptions on the monofill size and fill thickness, the pollutant concentrations in the sludge, the pollutant concentrations in the leachate, and the net recharge (infiltration) rate. The duration of time, T (years), over which the fill releases a metal pollutant to unsaturated zone (leachate pulse duration) is then calculated from the following factors: the metal concentration in sludge, CS (milligrams per kilogram); the sludge solids content, SS (kilograms per liter); the fill thickness, D (meters); the assumed leachate concentration, CL (milligrams per liter); the ground-water recharge rate, R (meters per year); and the excess liquid in the original sludge volume, EL (liters per liter). The result is:

$$T = ((CS \times SS/CL) - EL \times D/R)$$

The EL term merely adjusts the recharge water budget for excess water in the sludge. For degradable organic pollutants, the above calculation is modified to account for the rate of decay within the fill, as described in the support documents (Reference numbers 58 and 66).

The above calculation of the leachate pulse duration assumes that CL remains constant over time until the sludge is completely depleted of the pollutant, thereby modeling the leachate pulse as a mathematical square wave. For any particular organic pollutant, the leachate concentration is determined by a solid/liquid partition coefficient and the concentration CS , in the sludge.

The leachate pulse is then used in the unsaturated zone model. CHAIN

(Reference number 61). CHAIN assumes a steady rate of percolation through the unsaturated zone and calculates the concentrations in the leachate as affected by sorption to the underlying soil and decay (of organic pollutants). The effect of sorption is to retard the movement of the pollutant through the soil profile and to elongate and flatten out the leachate pulse, thereby reducing the peak concentration. For both metals and organics, sorption to soil is determined by a solid/liquid partition coefficient. The effect of decay is to reduce the overall amount of pollutant in the leachate. For organic compounds, decay includes the processes of hydrolysis and anaerobic biodegradation.

In evaluating exposure to the MEI, the depth to ground water is assumed to be zero over Class I ground water and one meter over Class II and Class III ground water. The definitions of Class I, Class II, and Class III ground water are explained in Part IX of the preamble. CHAIN is bypassed in assessing exposure to an MEI for monofills located over Class I ground water, but is used for assessing exposure to an MEI when a monofill is located over Class II or Class III ground water.

At the bottom of the unsaturated zone, the peak concentrations of metals in the leachate pulse, attenuated as calculated by CHAIN (where applicable), are then adjusted for solubility constraints, based on the calculations of MINTEQ (Reference number 13). The model does not actually operate the MINTEQ code, but rather incorporates the results of previous runs of MINTEQ at various conditions of pH and Eh. The MINTEQ solubility adjustments are applied only to the six metals (arsenic, cadmium, copper, lead, mercury, and nickel). At the low pH and high Eh used in the exposure assessment analysis, MINTEQ predicts that copper would be the only metal to precipitate in amounts that would reduce greatly the ground-water concentration.

The flux of pollutants entering the aquifer in the area beneath the monofill is then input (as a square wave at the peak concentration) to the saturated zone fate and transport model, AT123D (Reference number 65). This model calculates the behavior and movement of the contaminant plume, as affected by advection (ground water flow), diffusion and dispersion (mixing), sorption, decay, and distance from the sewage sludge unit to the property boundary of the monofill or 150 meters (whichever is less). For Class II and Class III ground water, the MCL must be met at the property boundary of the monofill or 150

meters, whichever is less. The effect of diffusion and dispersion is to spread the contaminant plume vertically and horizontally, thereby further reducing the peak concentration. AT123D is only operated for Class II and Class III aquifers. In Class I aquifers, the leachate must meet the MCL upon entry to the aquifer.

The components of the model (leachate pulse—CHAIN—MINTEQ—AT123D) are operated in an iterative trial and error mode to determine the sludge concentration that produces a peak concentration equal to the MCL at the point of compliance.

The Agency evaluated exposure to pollutant vapors even though dewatered municipal sludge is unlikely to contain significant quantities of highly volatile material. Most volatile pollutants would vaporize before sludge disposal, particularly during wastewater aeration or during sludge dewatering. The model used here (Reference number 67) has two components: (1) Calculation of the flux of volatile pollutants into the atmosphere, and (2) determination of the peak air concentration at the property boundary.

The model is formulated so that the vaporization flux depends on the initial concentration of a pollutant in the

sludge and on the monofill's cover material. During the time the wastes are assumed to be uncovered, the rate of vaporization is controlled by the rate of diffusion into the air (as opposed to diffusion up through the sludge). The flux is thus formulated to depend primarily on the wind speed and Henry's Law constant (concentration of the pollutant in air divided by the concentration of the pollutant in water, at equilibrium).

During the time that the fill is temporarily or permanently covered, the rate of vaporization is formulated to depend on the rate of diffusion up through air-filled pores in the cover material. The rate thus depends primarily on the cover material's porosity and thickness and on the Henry's Law constant.

The mean flux from the monofill is determined by considering the areas of the monofill expected to be uncovered and temporarily or permanently covered at any time, as described in the "Technical Support Document for Landfills" (Reference number 58).

The concentration at the centerline of a plume downwind of the monofill depends on the size of the monofill, the distance to the point of compliance at the property boundary, the wind speed,

and the degree of atmospheric mixing. The wind direction is assumed never to change, so that the MEI always remains in the centerline of the plume.

The predicted vapor exposure is combined with the predicted drinking water exposure and then compared to the exposure allowed by the MCL, RfD, or risk specific dose.

Technical Uncertainties and Issues in the Analysis of Monofills

There are a number of uncertainties and issues in modeling the exposure of an MEI to the pollutants in sewage sludge that is placed in a monofill. The modeling involved is relatively complicated, and the validity of some of the model's assumptions and parameter values is uncertain. For the two pathways that the Agency has modeled, Table IV-4 presents the most significant assumptions and parameters.

The Agency's SAB has questioned several aspects of the modeling framework and suggested it may result in unrealistic over-estimates of exposure and more stringent numerical limitations than necessary. The Agency is soliciting comment on the modeling framework and the parameter values used in the model.

TABLE IV-4.—KEY PARAMETERS AND ASSUMPTIONS FOR MONOFILLING

Pollutants of pathway	Greatest concern	Key parameters and assumptions for pollutants of concern
Ground water	As, Cd, Pb, Benzene, BEHP, TCE	Assume all pollutants are leachable. Assume metal's leachate concentration independent of sludge concentration. Partition coefficient. Organic pollutant's decay rate. Soil type. Depth to ground water. Assume square wave input to ground water. Ground water Eh, pH. Distance to fence line. Drinking water MCL.
Vapor	Diethyl nitrosamine, BEHP	Assume vaporization controlled by atmospheric diffusion for unburied fill and by pore diffusion for buried fill. Assume vaporization unimpeded by sorption or decay. Henry's Law constant. Wind speed and atmospheric mixing. Assume wind direction unchanging. Allowable air concentration.

Pathways Considered

Four pathways of exposure to the MEI from monofilled pollutants were originally considered: (1) Drinking of ground water containing pollutants that leached from the monofill, (2) inhalation of vapors, (3) inhalation of particles suspended from the open face (unburied portion) of the fill, and (4) run-off to streams. After some preliminary analysis, the Agency found that the third and fourth pathways were unlikely to be important.

The SAB, however, suggested the movement of contaminated ground water into surface waters as a fifth pathway. While the Agency doubts that the risks from such a pathway would exceed those from drinking the ground water directly, it is considering some future evaluation of the pathway.

Leachate Strength Upon Exiting the Fill

The total dry weight concentration of any pollutant in sludge (in mg/kg) can be related to the concentration of the pollutant sorbed to sludge solids, the

concentration of a pollutant dissolved in the sludge liquid, and the percent liquid contained in the whole sludge. As water percolates from the land surface into the sludge fill, the liquid in the sludge fill is displaced downward into the underlying soil as leachate. The new liquid percolating into the fill then reaches equilibrium with the sludge solids.

The Agency assumed here that all sludge pollutants will eventually be solubilized if they are not first degraded. All sorption is thus considered to be readily reversible. The Agency suspects,

however, that the analysis may over-estimate the mobility of pollutants in sludge and thereby over-estimate the amount of exposure.

The leachate pulse leaving the fill is modeled as a square wave. Over time, the leachate flux (leaving the sludge and entering the soil) is assumed to maintain a constant value until the pollutant is depleted from the sludge, at which time the leachate flux would be zero. If the pollutant were reversibly sorbed to solids, it could be expected that, over time, the leachate concentration flux would gradually die off to zero. Nevertheless, based on numerical simulations, the Agency believes that a square wave flux and a gradually dying-off flux produce similar results once the leachate has traveled about one meter into the unsaturated zone.

In calculating numerical limits, the dissolved concentration in the sludge and in the leachate from the sludge is related to the sorbed concentration in the sludge by a chemical partition coefficient. The Agency was not always consistent in its modeling of sorption and it intends to re-evaluate the partition coefficients applied, particularly for metals. The Agency may have under-estimated the sorption of several metals to sludge and slightly over-estimated the sorption of source organics to sludge. A more complete discussion is provided in the "Technical Support Document For Landfills" (Reference number 58). The Class I ground water limits are most affected by the Agency's assumptions about sorption to solids.

Effect of Monofill Liners

The Agency did not explicitly intend for the analysis to account for the effect of liners in restricting the movement of pollutants out of the fill. The SAB recommended that the analysis consider liners, although the Agency believes that liners are generally not used in sewage sludge monofills. The Agency did not specifically act upon the SAB recommendation on liners. Nevertheless, the rule does allow for numerical limits to be calculated using site-specific values for soil type and recharge rate. The Agency is requesting comment on whether or not this is a satisfactory means of accounting for the effects of liners when calculating site-specific numerical limits.

Use of CHAIN

CHAIN assumes a steady rate of water percolating down through the unsaturated zone. This allows a relatively efficient iterative analytical solution. However, the assumption of steady flow tends to under-estimate the

travel time (and thus the amount of decay) and to over-predict the pollutant concentration.

The SAB recommended the use of the unsteady flow model, PRZM, because of its better resolution of transient events. The Agency, however, is not sure whether better resolution of transient events (although important for short-term analyses) has much value in the analyses of long-term exposure used in this proposal, or whether the inaccuracy introduced by CHAIN (relative to PRZM) is significant compared to other uncertainties and inaccuracies in the models.

MINTEQ

The model does not actually operate the MINTEQ computer code, but rather incorporates the results from running the model at several pollutant concentrations for six different combinations of pH and Eh for arsenic, cadmium, copper, lead, mercury, and nickel. Other pollutants are not simulated by MINTEQ.

In the six combinations of pH and Eh considered, pH has the value of either 6 or 7, and Eh has the value of either -200, +150, or +500 millivolts. The national numerical limits are based on a pH of 6 and Eh of +500. For case-by-case applications of the model, the Agency is uncertain if the above ranges of pH and Eh cover the range of ground water conditions likely to be encountered.

Input to AT123D

The concentration at the bottom of the unsaturated zone (output from CHAIN), when plotted over time, has a Gaussian-like shape (i.e., a rounded central peak tapering off to long tails). For input to AT123D, this smooth curve is converted to a square wave, having a concentration equal to the CHAIN output peak concentration.

The duration of this square wave is formulated to be the duration from that point when the concentration output from CHAIN first reaches one percent of the peak concentration, through the period of elevated concentration, until the concentration drops back to one percent of the peak. The Agency checked this assumption and found that it injected some 2.5 times more contaminant into ground water than the amount reaching the bottom of the unsaturated zone. For non-degrading chemicals, this also means that 2.5 fold more chemical is input to ground water than was disposed of in the landfill.

The Agency believes that, to track the mass of pollutant, it may be more accurate for the duration of the square wave to be equal to the time between

the moment when the Gaussian curve first attains 10 percent of the peak and the time when it drops back to 10 percent of the peak (when converting a Gaussian curve into a square wave having the peak concentration). The Agency may change this aspect of the model and is soliciting comment on appropriateness of this change.

Output From AT123D

Users of this model have sometimes found anomalous results. Rather than steadily decreasing with distance, the peak concentration predicted at various distances from a landfill may first increase and then decrease with distance. The Agency is uncertain of either the reason for this anomaly or its overall significance. The Agency is requesting comment on the source and significance of this problem.

Orientation of the Monofill With Respect to the Ground Water Flow

For case-by-case application of the model, the Agency intends to fix the orientation of the monofill as a square monofill at the edge of the aquifer, regardless of the actual site characteristics. If the monofill area were a highly elongated shape, the orientation of the fill with respect to the ground water flow would increase or decrease the ground water concentration. The Agency is soliciting comment on whether it should consider the actual orientation of the monofill in case-by-case determinations of pollutant limits.

Time-Variable Exposure

The predicted concentrations vary over time, whether at the bottom of the saturated zone (i.e., the compliance point for Class I ground water) or at the property boundary (or 150 meters from the sludge disposal unit—the compliance point for Class II and Class III ground water).

Since the peak concentration of a pollutant is not permitted to exceed the allowable concentration, the model calculates a concentration that will not exceed an MCL at any time. For carcinogens with no MCL, the numerical limits are calculated so that the peak concentration does not exceed the 70-year mean concentration corresponding to a risk specific dose. The degree to which the peak concentration exceeds the 70-year mean concentration depends on how rapidly the concentration varies through time, which, in turn, depends primarily on the chemical partition coefficient and the distance involved. Therefore, public comment is requested on whether the Agency should determine the numerical limits for

carcinogens using the 70-year mean concentration rather than the peak concentration.

Vaporization Flux

The flux of a pollutant from the monofill into the air depends on the cover over the fill. For uncovered fill, the Agency assumed that the rate limiting process is the diffusion rate of a pollutant from the air-sludge interface into the bulk volume of the air. The Agency is uncertain that the rate limiting process has been correctly identified. The principles set forth in some of the Agency's technical guidance (Reference numbers 10 and 21) indicate that diffusion of a volatile pollutant from within the sludge out to the air-sludge interface should be expected to be the rate limiting process. If the rate limiting process were not correctly identified, the vaporization flux would be overestimated. The Agency is requesting comment on the vaporization formulation and is particularly seeking alternative formulations for consideration.

For covered fill, the rate is formulated assuming that the rate limiting process is the movement of pollutant up through air-filled voids in the cover material. While the Agency believes that this is reasonable, the SAB has criticized the approach for not considering the retarding effects of sorption and degradation. The Agency is seeking comment and will consider any alternative formulations suggested.

The model does not keep a mass balance account of the total quantity of pollutant vaporized. The model is capable of vaporizing more pollutant than was originally placed in the monofill. In addition, the quantities leached to ground water include the quantities vaporized, thus resulting in some double counting of exposure. The Agency is considering modifying the model to correct these problems.

Atmospheric Plume Modeling

The atmospheric plume model calculates the peak concentration at the centerline of the plume. The MEI is assumed always to remain in the centerline of the plume. The Agency is requested comment on the appropriateness of this assumption and suggestions for other assumptions.

The wind speed (1 meter per second) and atmospheric stability parameters (as described in Reference number 66) are intended to represent the worst combination of conditions. While they may be appropriate for an event, the Agency is uncertain whether they are reasonable for representing long-term conditions. The Agency is soliciting

recommendations for appropriate values for the long-term atmospheric conditions.

Model Validation

The Agency has applied modeling approaches that it generally believes are reasonable. The Agency cautions, however, that the ability of the models to accurately simulate actual field situations accurately has not been verified. As noted above, questions remain about the adequacy of some aspects of the model framework and the appropriateness of some of the parameter values. Thus, the Agency is soliciting comment on all aspects of the model used to calculate the numerical limits for the disposal of sludge in monofills.

Incineration

The Agency used a single exposure pathway, inhalation of the incinerator emissions, in analyzing exposure to the MEI. The Agency considers the disposal of incinerator ash to be adequately regulated under 40 CFR Parts 257, 258, and 261 through 68. The disposal of scrubber water is subject to National Pollutant Discharge Elimination System requirements. Generally scrubber water is recycled into the Publically Owned Treatment Work influent. One remaining pathway, exposure to emitted contaminants that may settle on land to water, will be evaluated in the future, as the Agency acquires more data and further develops evaluative models.

In developing today's proposal, the Agency evaluated the inhalation of sludge incinerator emissions of arsenic, cadmium, chromium, lead, nickel, and total hydrocarbons. Total hydrocarbons are used as a surrogate for all organic pollutants and will be discussed in Part IX of the preamble.

The Agency performed air quality modeling to determine the emission rates (mass per unit time) that can be allowed without imposing undue risks to an MEI in the vicinity of the incinerator. For total hydrocarbons, the allowable emission rate determined by modeling is the numerical limit. For metals, an allowable sludge concentration is derived from the allowable emission rate.

The Agency previously evaluated the inhalation of beryllium and mercury during development of National Emission Standards for Hazardous Air Pollutants (NESHAPs), which specify allowable emission rates. For this rule the Agency is taking the NESHAPs values to be the allowable emission rates of beryllium and mercury for sludge incinerators.

The analysis of the inhalation of incinerator emissions employs atmospheric dispersion modeling to relate emission rates to ground level exposure concentrations. As discussed below, the allowable emission rate is determined from (1) the allowable ambient air quality concentration at ground level (the risk specific concentration), (2) the stack height and other physical characteristics of the site, and (3) the meteorological conditions of the site. The allowable sludge quality is then determined by the above allowable emission rate, the rate of sludge incineration, and emission control efficiency.

The allowable ambient air concentration is set to correspond to a risk specific dose for carcinogenic metals (arsenic, cadmium, chromium, and nickel), assuming that the MEI inhales 20 cubic meters of air per day and that indoor and outdoor air concentrations are essentially equal. Lead is set at 25 percent of the National Ambient Air Quality Standard. The rationale for this value is discussed later in the preamble.

The allowable ambient air concentration for total hydrocarbons is based on (1) statistical relationships between the concentration of total hydrocarbons and the concentrations of specific organic pollutants emitted by the four sludge incinerators that were tested and (2) the assumed cancer potency of the specific organic pollutants, as discussed later in the preamble.

Three models are used in today's proposal for incineration: ISCLT, LONGZ, and COMPLEX I (Reference number 44). ISCLT is intended for urban or rural situations where the terrain elevations do not exceed the stack height. It takes account of the aerodynamic effect of building downwash, which is likely to be significant for many sludge incinerators with short stacks. The other two models do not evaluate building downwash, but are more appropriate in situations where terrain elevations exceed the stack height. Such terrain is termed complex terrain. LONGZ is intended for complex urban terrain, while COMPLEX I is intended for complex rural terrain.

All three models require data on the incinerator, the surrounding terrain, and the meteorology of the site where the incinerator is located. Incinerator data include stack height, stack exit diameter, gas flow, and gas temperature. Meteorological data include joint frequency distributions of wind direction, wind speed, and atmospheric stability. The location of the MEI is not

specified beforehand, but is set at the location predicted by the model to have the highest long-term average concentration.

In assessing the exposure to the MEI, ISCLT was used because of its ability to simulate building downwash. Since the MEI location for facilities with significant downwash tends to be close to the incinerator, inability to simulate complex terrain accurately was not considered a serious shortcoming. Side-by-side comparisons of the three models indicated that ISCLT predicts higher concentrations than LONGZ or COMPLEX I, even in complex terrain.

Evaluation of the effect of model parameters on the results indicated that stack height was a key parameter. Consequently, the dispersion factor (maximum long-term exposure concentration per unit rate of emission) varies with stack height. To generate a regression relationship between dispersion factor and stack height, a number of facilities having various stack heights were modeled. Although the stack diameter and gas velocity also varied among these facilities, these parameters were not important and had little effect on the regression relationship. Other parameters were held constant and were applied to all facilities: wind characteristics of Atlanta, Georgia (which had the worst combination of parameters in any U.S. city examined); flat terrain; gas temperature (38 degrees Celsius); building height (5.5 meters); and building effective diameter (39.5 meters) (Reference number 27).

The metals emission control efficiencies assumed in assessing the exposure to the MEI correspond to the worst 10 percent of EPA's data on sewage sludge incinerators. These control efficiencies are as follows: arsenic, 96 percent; cadmium, 65 percent; chromium, 96 percent; lead, 67 percent; and nickel, 95 percent. Control efficiencies are not assumed for organic compounds. Instead, total unburned hydrocarbons are to be used to control organic emissions.

Technical Uncertainties And Issues In The Analysis Of Incineration. The risk analysis for incineration employs a commonly used air modeling approach, coupled with readily measurable input data. Nevertheless, there remain a few technical issues, which are described below.

Worst-Case Conditions. In determining the relationship between MEI exposure and stack height, the Agency used the meteorology of Atlanta, Georgia, the worst case of 18 sites evaluated. Emission control efficiencies for metals correspond to the

worst 10 percent of EPA's data on sludge incinerators. Other less important parameters were based on the typical values.

The MEI is assumed to remain at the location of maximum concentration for 70 years. The emissions are assumed to be 100 percent respirable and absorbed by the MEI. Indoor air quality was assumed to be no better than outdoor air quality.

Deposition Of Particulate Pollutants. The current analysis assumes that all emissions remain airborne, thus maximizing their potential for inhalation by the MEI. The SAB, however, recommended that the analysis account for human and ecosystem exposure to incinerator emissions deposited on the ground.

EPA is developing a methodology to perform such an analysis, and will consider it for future application. The methodology involves predicting deposition onto soil and vegetation, further movement of settled pollutants through environmental media, bioaccumulation, human exposure, and ecological effects.

Short Term Variations. The methodology used in this proposal predicts long-term exposure for the average operating conditions at an incinerator. The SAB has suggested that the analysis also consider short-term fluctuations. The Agency considers it unlikely that potential short-term effects could be of greater concern than the potential chronic or long-term health effects considered here. However, if adequate data become available to support an analysis of short-term fluctuations, they will be evaluated.

The Agency continues to investigate the effect of regularly occurring start-up and shut-down events on the long-term average emission control efficiency. The Agency's initial investigations of this suggest that the effect may not be particularly important.

PART V: HUMAN HEALTH CRITERIA

Over the years, the Agency has proposed, and either promulgated or published as guidance, criteria to protect public health and the environment from the adverse effects of specific pollutants. Where such criteria are available, these criteria are used in the exposure assessment models to derive numerical limits. EPA is seeking public comment on the manner in which the Agency is proposing to use the criteria in today's proposal.

As previously explained, the human health criteria that were used in establishing numerical limits for monofills are the maximum contaminant levels (MCLs) for drinking water. Where

MCLs have not yet been promulgated in final form, proposed MCLs have been used to establish health-based limits for ground-water contamination. When MCLs are revised, the new drinking water standards will be adopted for this purpose. In the incineration equation, EPA used the National Emissions Standards for Hazardous Air Pollutants for mercury and beryllium, and the National Ambient Air Quality Standards for lead. Water Quality Criteria were used in the appropriate pathways of exposure in the land application model.

Criteria for Non-carcinogens

Where the Agency has not published human health criteria for a non-carcinogenic pollutant, the Agency is proposing to use a reference dose (RfD) listed in the Agency's computerized Integrated Risk Information System (IRIS). Information on access to the data in IRIS is listed in Part XIII of the preamble.

An RfD is a threshold below which adverse human health effects are unlikely to occur. The RfD is directly analogous to a previously used EPA-term "acceptable daily intake" (ADI). The Agency prefers the term RfD rather than ADI to avoid the implication that doses below the threshold are always acceptable, while doses above the threshold are always unacceptable.

The RfDs listed in IRIS are based on an intra-Agency review of the latest scientific information used in the Agency's risk assessments. EPA derives the RfD threshold by evaluating toxicity data for humans (where available) or animals. If multiple studies with different animal species are available, the most sensitive species is often selected. From such data a "no observed adverse effect level" (NOAEL) is identified for the critical toxicological effect or end point. The NOAEL is the highest dose of a chemical at which there is not a statistically or biologically significant increase in frequency or severity of an adverse effect when individuals in an exposed group are compared to individuals in a control group. The RfD typically is set 100-1000 fold below a NOAEL, depending on the quality of the data available.

The Agency recognizes that the actual threshold value at which adverse human health effects may occur could be an order of magnitude higher or lower than the value listed in IRIS. While exposure above the RfD increases the probability of adverse effects, it does not produce a certainty of adverse effects. Similarly, while exposure at or below the RfD reduces the probability, it does not guarantee the absence of adverse

effects. The procedure used to establish the RfD does not permit the Agency to estimate what fraction of the population would exhibit effects for exposure above, at, or below the RfD.

RfDs were used to derive an acceptable daily dietary intake (DDI) for the land application and distribution and marketing equations. To derive the acceptable DDI of a pollutant from food and animal products raised on sludge-amended soils, the Agency subtracted the background intake from the RfD. The background values were average values listed in the literature for toddlers and adults and include intake from drinking water, food other than food grown or raised on sludge-amended soils, air, and, in the case of lead, household dust. Because the Agency has not established an RfD for arsenic, the MCL for arsenic was used to derive an acceptable DDI.

Derivation of Lead Limitations for Land Application

EPA is concerned about the health implications of exposure to lead. It is the Agency's objective to minimize lead exposure, particularly for susceptible subpopulations. When sewage sludge is applied to agricultural land, individuals are exposed to lead from food or food products grown on sludge-amended soil.

In land application, the human health pathway is not the most stringent one for the control of lead. An ecological pathway is the most stringent one. Nonetheless, due to the paramount concern about the human health impacts of lead, the following discussion describes in detail how the Agency derived the lead limits based on human impacts. Not only will this promote public discussion and informed comment, it will also demonstrate how the Agency's methodology works for a given pollutant.

By 1990, EPA estimates that the average daily total intake of lead will be approximately 30 micrograms (μg) for children and adults in the United States. Although food is the source of 50 to 75 percent of the overall lead intake for the average adult and of 30 to 45 percent for the average child, only 0.02 percent of this food is grown on sludge-amended soil. Therefore, the portion of overall lead intake attributable to food from sludge amended soil is negligible ($30 \mu\text{g} \times .75 \times .002 = 0.0045 \mu\text{g}$) even before Federal regulation of lead in sewage sludge. For comparison purposes, the proposed drinking water MCL of 5 $\mu\text{g}/\text{per liter}$ which allows an individual to intake 10 $\mu\text{g}/\text{per day}$ (assuming an average individual drinks 2 liters of water per day). This level is 2,000 times higher than the average exposure from

lead in sludge applied to agricultural land.

EPA believes the concentration of lead in sewage sludge applied to agricultural land should be limited. Despite its small contribution to daily lead intake, further reduction will promote EPA's policy of lowering blood lead levels. The Aggregate Risk Analysis estimates that at a baseline there are 920 women, children, and white men (the Aggregate Risk Analysis explains why only white men were tabulated) who would be at risk of adverse effects as a result of the application of sewage sludge to agricultural land with current concentrations of lead. The overwhelming majority of these are men with hypertension. The same analysis estimates there could be 38 cases of adverse health effects related to this sludge exposure (see Table VIII-1 in Part VIII of the preamble). These demonstrate the potential for reductions in human health impacts through control of lead levels in sewage sludge applied to agricultural land. The adverse health impacts could also increase if there is an increase in land application of sewage sludge consistent with EPA's Policy on Beneficial Reuse.

Consistent with the statutory directive that the Agency protect against "reasonably anticipated adverse effects" (see section 405(d)(3) of the CWA), EPA conducted, here as elsewhere, an analysis using a combination of reasonable worst-case assumptions to calculate the lead limit. This involved modeling how lead travels from sludge applied to land, through the food-chain, to a human endpoint.

The additive effect of this combination of reasonable worst-case parameters produces a lead limitation that is sufficiently protective of the most exposed individual (MEI) while also accounting for potential data inadequacies. These lead limitations will protect the general population by lowering the total exposure to lead from food grown on sludge-amended soils. However, the method does not drive the limits to levels necessary for protection in every conceivable worst possible circumstance.

The actual methodology involves a number of steps. Since EPA has not established an RfD for lead, it examined the health effects from lead that are generally correlated with blood lead levels to select the human endpoint most sensitive to lead exposure from sewage sludge. Lead exposure across a broad range of blood lead levels is associated with a continuum of pathophysiological effects, including interference with heme

synthesis necessary for formation of red blood cells, anemia, kidney damage, impaired reproductive function, interference with vitamin D metabolism, impaired cognitive performance, delayed neurological and physical development in newborns and elevations in blood pressure among adults.

There are several options available for this sensitivity parameter. White middle-aged men (40-59), young children (0-2), and pregnant women (as exposure surrogates for the fetus) are all subpopulations especially sensitive to the toxic effects of lead. Relative to pregnant women, delays in early mental and physical development of fetuses and infants have been associated with maternal blood lead levels. Because the biokinetics of lead during pregnancy have not been well elucidated, the available data are inadequate to quantitatively predict fetal lead exposure under various exposure scenarios. In young children, lead impacts include impairment of mental and physical development, including loss of hearing and reduced attention span in school. For white, middle-aged men, several studies have found a small, but consistent, relationship between blood lead levels and blood pressure. The blood pressure increases may be associated with some increased risk for more serious cardiovascular disease events, such as strokes and heart attacks, especially if blood lead levels are chronically elevated (Reference number 45).

Although children absorb more lead from food, they are not maximally exposed to lead in sewage sludge. Children do not typically consume food grown on sludge-amended soils to the extent that adults do. Since adult males consume more food than women and children, they are more exposed to, and may be most affected by, changes in lead concentrations in sludge that is applied to agricultural lands. Therefore, for this parameter, EPA selected middle-aged men as the human endpoint most sensitive to lead effects.

Step two in the process is to select a blood lead level of concern. In recent rulemakings, the Agency has selected a level of 10 μg of lead per deciliter of blood as a level of concern for health effects which warrant avoidance in infants and children. Research on white males 40 to 59 years old (Reference number 30) found significant associations between blood lead levels and blood pressure after accounting for the other known factors previously associated with elevated blood pressure. This research showed that, with little

change in the coefficient, the relationship also held when tested against every dietary and serological variable measured in NHANES II data, a data base on health and nutrition in the U.S. population (Reference number 30). There remains considerable uncertainty as to the location of a blood lead threshold, if any, for a blood pressure change and the mechanisms by which these changes occur. Therefore, the Agency has not yet determined an appropriate blood lead level to serve as a target for the protection of adult men from elevated blood pressure associated with exposure to lead. However, for purposes of this analysis only, EPA assessed the potential effects of this proposed regulation on adult men based on a blood lead level of 10 $\mu\text{g}/\text{dl}$. If the Agency determines that the level of concern is lower than 10 $\mu\text{g}/\text{dl}$, we will re-evaluate the impacts of this proposal and may choose a different limit on lead in sludge which better reflects the appropriate blood lead level of concern.

The third step in the process is to choose a baseline lead exposure level from all sources other than food grown on sludge-amended soils. The August 1988 Draft Report, "Review of the National Ambient Air Quality Standards for Lead: Exposure Analysis Methodology and Validation" (Reference number 82), included estimates of average lead exposure levels under various air lead concentrations. The report projected a 1990 baseline average blood lead level for white middle-aged men of 3.9 to 4.9 $\mu\text{g}/\text{dl}$. These levels result from exposure to all media including air, drinking water, food other than food grown or raised on sludge-amended soils, dust, and dirt.

It must be noted that these calculations are for an average exposed individual in a large population. Baseline exposure to lead results in blood lead levels that are lognormally distributed. To more completely characterize risk, we must examine blood lead distribution around the average baseline. Given a mean baseline lead in middle-aged men of 4.4 $\mu\text{g}/\text{dl}$ and a geometric standard deviation of 1.37 (from NHANES II), approximately 10 percent of the population would be over 6.7 $\mu\text{g}/\text{dl}$ and 1.0 percent would be over 9.2 $\mu\text{g}/\text{dl}$. Because of the Agency's concern for those individuals who are exposed to above average lead levels at the baseline (individuals most exposed to lead), EPA selected 8.0 $\mu\text{g}/\text{dl}$ as the baseline blood lead exposure level. This corresponds approximately to the 95th-percentile of the distribution.

Step four is to determine the allowable daily intake of lead for sludge that is still protective of the blood lead level of concern. To derive the ADI, the Agency subtracted the baseline blood level exposure level (8 $\mu\text{g}/\text{dl}$) from the blood lead level of concern (10 $\mu\text{g}/\text{dl}$). The Agency then calculated what amount of lead intake from food grown on sludge-amended soils would translate into 2 $\mu\text{g}/\text{dl}$.

Not all of the lead in food that is eaten is absorbed by the body. A method to convert dietary lead intake to blood lead level is described in the Draft Exposure Report and is based on experimental studies, in which dietary supplements were administered to volunteers, and duplicate diet studies. Two studies are identified as most useful in estimating a dietary lead/blood lead relationship (see Reference numbers 83 and 84). For middle-aged men, the coefficient of increase of blood lead level and lead intake attributable to consumption of lead in food is 0.032. Dividing 0.032 into 2 yields of 62.5 μg of lead per day allowable intake due to consumption of lead in foods raised on sludge-amended soils. To be conservative, the Agency chose to limit the allowable intake of lead from sludge to 20 μg per day rather than 62.5 μg .

Step five requires the selection of an individual who is most exposed to sludge (MEI). Approximately 0.02 percent of national agricultural land is treated with sludge each year. With an assumption of complete national mixing of food, an average individual's diet of fruits, vegetables, and meat products contains no more than 0.02 percent of foods grown on sludge-amended lands. To be protective, we assume to MEI receives over 100 times more of his food supply from sludge-amended soils than the average individual. The model attributes 2.5 percent of the MEI's diet to food from sludge treated soils due to potentially high consumption from roadside stands.

Step six is to establish, for each step in the pathway of exposure through the environment, an allowable concentration of lead in the soil and in the plant. The concentrations are based on reasonable worst-case assumptions that speed the transport of lead through the environment and that magnify the bioaccumulative effects of lead in plants and animals. The approach and values used are detailed in Part IV of the preamble and in the "Technical Support Document: Land Application and Distribution and Marketing of Sewage Sludge" (Reference number 57).

Step seven is to establish a lead limitation that would not exceed the

allowable DDI. In this case, the model calculated, for the human health pathway, a cumulative pollutant loading rate for lead of 176 kilograms per hectare (kg/ha). However, the model calculated a non-human health cumulative pollutant loading rate of 77 kg/ha. Therefore, the human health pathway was not the most stringent for this pollutant. Because the environmental or non-human health limitation is more stringent, the limit for lead will be even more protective of human health.

It is important to note the relationship between the proposed limitation and current requirements. Thirty-two States now limit the application of lead to soil. The rates range from 200 kilograms of lead per hectare to 2520 kilograms of lead per hectare. The median value is 530 kilograms of lead per hectare. Current EPA guidance suggests that lead should not be applied at a cumulative pollutant loading rate in excess of 500-2000 kg/ha. The proposed lead limit of 125 kg/ha will result in very significant reductions, more than 80 percent.

The Aggregate Risk Analysis projects the number of people exceeding blood thresholds would drop from 920 to 249 after regulation for a benefit of 671. Likewise, the lead cases due to land application would drop from 38 to 10.

Because of the reasonable worst-case conservative nature of this methodology, EPA believes the proposed regulation is very protective of human health impacts from lead. However, we invite comment on the methodology and our selection of parameters. The Agency is interested in whether the public believes EPA has been sufficiently protective or whether EPA should have been more conservative. For example, comment is sought on the advisability of selecting 15 μg per day instead of 20, as the allowable daily intake of lead from sludge, in Step 4. Conversely, the Agency also seeks to know if the public feels it has been too conservative (e.g., in Step 4, EPA could have used the 62.5 μg per day of lead produced by our analysis as the allowable daily intake).

As described above, this human pathway analysis is based on evaluating middle-aged men as the human endpoint most sensitive to lead exposure from sludge. The limitation derived from this methodology will not only protect that MEI but, of course, will also protect the general population and other sensitive subpopulations. Of the 920 people estimated at the baseline to be at risk of adverse health effects resulting from lead in sewage sludge applied to agricultural land, less than 30 are women or children. The proposed

regulation will reduce that number to less than 10. Nonetheless, we invite comment on whether the proposed limitations are sufficiently protective for the specific subpopulations of children 0 to 2 and pregnant women.

As mentioned earlier, there is the potential for an increase in the application of sewage sludge to agricultural land. Such an increase could increase exposure to lead from sewage sludge. In fact, our impact analysis projects there will be a 10-percent decrease in agricultural land.

EPA is also interested in comments on the impact of these limitations on the beneficial reuse of sludge and on the potential inter-media transfer of lead risks. Some municipalities have suggested that our analysis understates the impact and will preclude land application of sludge in most cases. If this is the result, increased amounts of sludge will be incinerated. This could reduce a greater lead exposure and increased numbers of individuals adversely affected by land. On the other hand, reduction of lead in gasoline may have resulted in lower amounts of lead in sludge (at treatment plants with combined sewers). Therefore, tight limits on lead in sludge may not preclude or reduce land application or increase incineration of sewage sludge. EPA is particularly interested in data on these matters that commenters could provide.

Criteria For Carcinogens

As discussed in the "Final Guidelines for Carcinogen Risk Assessment" (51 FR 33992, September 24, 1986), the Agency classifies a pollutant's potential for exhibiting carcinogenic hazards by considering the weight of evidence indicating that a pollutant is a carcinogen. The classes of carcinogens are:

- Group A—human carcinogen based on sufficient epidemiological data;
- Group B1—probable human carcinogen based on sufficient animal data with suggestive human data;
- Group B2—probable human carcinogen based generally on sufficient animal data without suggestive human data;
- Group C—possible human carcinogen based on more limited animal data;
- Group D—not classifiable as a carcinogen due to insufficient data; and
- Group E—evidence of non-carcinogenicity.

Twenty-one of the pollutants for which the Agency is proposing standards have been classified as carcinogens. Table V-1 list the twenty-one pollutants with their associated

weight of evidence designations.

TABLE V-1.—CARCINOGENS

Pollutant	Weight of evidence	Unit risk estimate (Q_1^*) ⁻¹ (mg/kg/day)
Aldrin	C	30.4
Arsenic ^{1, 2}	A	15.0
Benzene	A	0.029
Benzo(a)pyrene	B-2	11.5
Beryllium ²	B-1	2.6
Bis(2-3thylhexyl) phthalate	B-2	0.0091
Cadmium ²	B-1	6.1
Chlordane	C	1.61
Chromium VI ²	A	41.0
DDD/DDE/DDT	B-2	0.34
Dieldrin	C	30.4
Dimethylnitrosamine	B-2	25.9
Heptachlor	B-2	3.37
Hexachlorobenzene	B-2	1.67
Lindane	B-2	1.33
Nickel ²	A	0.84
PCBs	B-2	7.7
Toxaphene	B-2	1.13
Trichloroethylene	B-2/C	0.011

¹ Arsenic is considered a skin carcinogen through ingestion of drinking water.

² These compounds are considered carcinogenic when inhaled.

For each pollutant classified as a carcinogen, the Agency quantitatively estimates, the upper-bound cancer potency (unit risk estimate Q_1^*) for the pollutant. A pollutant's potency is a measure of its ability to increase the risk of contracting cancer over a life time, expressed per unit of daily dose. For Group A pollutants, the cancer potency was based on epidemiological data. For all others, potency was estimated from animal test data. The Agency's upper-bound potency estimates are shown in Table V-1.

Estimates of cancer risks resulting from given levels of exposure are subject to great uncertainty. Extrapolation of carcinogenicity from animals to humans involves uncertainties due to differences in physiology and metabolism. Extrapolation from high doses generating a detectable cancer response to low doses corresponding to environmental contamination involves uncertainties in the shape assumed for the dose-response curve.

For the Table V-1 pollutants, the Agency has extrapolated the response at high doses to the predicted response at low doses assuming the linearized multi-stage model. Compared to other available extrapolation models, the Agency's model generally produces higher estimates of cancer potency and risk. The proposed numerical limits would be higher, possibly by one or two orders of magnitude, if a different extrapolation model had been used. The uncertainties are most pronounced for

pollutants showing indications of cancer-promoting action but not cancer-initiating action. Such pollutants include DDT.

Of the available cancer dose-response models, none is recognized as producing the most accurate results. EPA does not believe that procedures yet exist for making "most likely" or "best" estimates of risk. Rather, the Agency believes that its procedures produce a plausible upper limit for risk. Such an estimate, however, does not necessarily give a realistic prediction of risk. The true risk may be as low as zero.

In determining the appropriate dose to use in the exposure assessment models for carcinogenic pollutants, EPA uses the quotient of an incremental risk and the potency value, Q_1^* . The incremental risk is defined as the probability of an individual contracting cancer following a lifetime of exposure to the maximum modeled long-term ambient concentration. Estimates of maximum individual lifetime cancer risk are usually expressed as the probability represented as a negative exponent of 10. For example, one additional cancer case in an exposed population of ten thousand is written as 1×10^{-4} , in an exposed population of one in one hundred thousand is written as 1×10^{-5} , and in an exposed population of one in one million is written as 1×10^{-6} .

The incremental risk cannot be construed as an absolute measure of the risk to the exposed population because of the uncertainties described above. Furthermore, a case does not indicate the severity of the outcome. An additional cancer case does not necessarily mean a terminal illness. Therefore, such estimates are best viewed as relative estimates of the likelihood of cancer.

The Agency usually evaluates risk targets ranging from 1×10^{-6} to 1×10^{-4} in making regulatory decisions. Risk levels of 1×10^{-6} to 1×10^{-4} are generally considered acceptable depending on (1) the pollutants involved, (2) the weight of evidence that the pollutants are human carcinogens, (3) the uncertainties in the analyses, (4) the certainty and severity of the risk posed by the pollutants or activities, (5) the reversibility of the health effects, (6) the number of people exposed to the pollutant, (7) the advantages of the activity, (8) the risks and advantages of any alternatives, and (9) the requirements of the statute under which the pollutants or activities are to be regulated. Risks of less than 1×10^{-6} (i.e., 1×10^{-7}) are very small and these lower estimates increase in uncertainty. Because of the uncertainties of the models and analyses, EPA may build in

margins of safety through either the parameters it uses in the models or the risk target it selects as a basis for its regulatory decisions.

PART VI: ENVIRONMENTAL CRITERIA

Section 405(d) of the Clean Water Act (CWA) requires standards that protect human health and the environment. To ensure that the numerical limits protect not only human health, but also the environment, the Agency examined the pathways through which plants and animals would be exposed to a pollutant when sewage sludge is applied to agricultural and non-agricultural land or distributed and marketed. The Water Quality Criteria published under authority of section 304(a)(1) of the CWA were used as the end point for determining a pollutant concentration that would generally ensure water quality adequate to support fresh water organisms. The guidelines that the Agency uses to develop criteria for aquatic organisms are published in 45 FR 79341, November 30, 1980.

Similar criteria have not been developed for the terrestrial target organisms. EPA could not follow the Water Quality Criteria guidelines in developing criteria for terrestrial organisms because studies have not been conducted on a sufficient variety of species for the Agency to follow the guidelines. Data are generally available for only domestic or commercially valuable species, not for wild plants and animals. Therefore, in selecting an environmental criterion for terrestrial organisms, the Agency used the threshold pollutant values, reported in the scientific literature, that were identified with reductions in growth, reproductive health, lifespan, and other symptomatic manifestations of toxicity. The species most sensitive to a pollutant were selected. Where sufficient data were available, the Agency set the allowable exposure at the geometric mean of (1) the lowest observed level of exposure that causes an adverse effect in a species (LOAEL) and (2) the highest observed level that did not cause an adverse effect in that species (NOAEL). Where it was not possible to bracket the LOAEL and NOAEL, the maximum safe dose for a species was used instead.

The Agency identified pollutant concentrations that would not exceed a value toxic to herbivorous animals exposed to pollutants by ingesting the sludge when grazing or by eating feed crops grown on sludge-amended soils. Toxicity values for cattle or sheep were used as the basis of the numerical value for the grazing animal. Toxicity values for swine, cattle, sheep, or chickens,

depending on the pollutant, were used for animals eating feed crops. These values were in turn inserted into the model to develop a numerical limit for the particular pathway of exposure to ensure that grazing and non-grazing herbivorous animals would be protected.

To protect soil biota, the Agency used toxicity thresholds for earthworms and grubs, although earthworms are generally the most sensitive species and the species for which the most data are available. However, data were evaluated for a broad range of soil biota, including microorganisms and small invertebrates living in or on the soil.

In selecting a toxic threshold for insectivorous mammals or birds consuming soil biota as a large portion of their diet, EPA used the predator of the soil biota having the highest bioconcentration factor for a particular pollutant to develop the lowest dietary concentration causing an adverse effect on a predator. Generally the most sensitive species were birds, although data for insectivorous mammals, such as moles, were also evaluated. The Agency is making the assumption that by using the highest available pollutant uptake slope in soil biota and the lowest available dietary threshold in domestic birds, the numerical limits will protect untested wild species as well.

In developing the threshold values for phytotoxicity, the Agency attempted to use the highest quality data available. Over the years, research on sludge used in the production of agricultural commodities demonstrated a hierarchy in data quality to predict field or "real world" conditions of pollutant uptake in plants and phytotoxicity. Generally, experiments conducted in fields using sewage sludge that already contains the heavy metals for study produce the most relevant data. Next in the hierarchy are experiments in which plants are grown in pots using sludge that already contain the heavy metals for study. A third level of data are derived from experiments in which salt solutions of the metals that are being studied are spiked into sludge which is then used to grow plants in pots. Response curves for plant uptake from such studies result in concentrations of trace elements and impacts on plant growth that are much higher and more severe than the use of data from the more representative field study.

The Agency selected data from the first category, if available. If data in this category were not available, data from the second category were selected. Only if data in the first two categories were not available, did the Agency select

sludge-salt data. The proposed numerical limits for nickel and zinc are based on the phytotoxicity pathway and are derived from sludge-salt data. The Agency invites comment on the use of sludge-salt data when sludge field data are not available.

In developing threshold values for phytotoxicity, the Agency derived the values on the basis of the geometric mean of the LOAEL and the NOAEL in the species most sensitive to a pollutant. Depending on the pollutant, the most sensitive species were generally leafy green vegetables, root crops, or legumes. The studies from which data were taken were generally those in which the soil pH was 6 or greater because this is the usual condition that maximizes crop productivity.

The numerical limits included in today's proposal are based on the most limiting pathway of exposure. The phytotoxicity pathway was the limiting pathway for chromium, copper, nickel, and zinc for both land application (agriculture) and distribution and marketing. Toxicity to predators (ducks) eating soil biota (worms) was the limiting pathway for lead in both land application (agriculture) and distribution and marketing. Toxicity to farm animals eating harvested feed grown on sludge-amended soils was the limiting pathway for molybdenum and selenium. For all other pollutants in land application (agriculture) and distribution and marketing, the limiting pathways of exposure were those affecting humans.

The "Technical Support Document for Land Application of Sewage Sludge" (Reference number 57) lists the values selected and the rationale used in selecting those values. The Agency invites the public to review the values listed in the Technical Support Document and to recommend other values where appropriate. The Agency is particularly interested in receiving data and information on toxicity values for wild plants and animals to supplement the data on which the environmental criteria were established.

PART VII: AGGREGATE EFFECTS ASSESSMENT

Introduction

EPA assessed the nationwide incidences of disease that could be identified and attributed to the use or disposal of sewage sludge. These aggregate effects were used in evaluating the overall risk of current practices and the benefits of four regulatory alternatives discussed in Part VIII of the preamble.

In assessing the adverse human health effects of exposure to sewage sludge-borne pollutants, the Agency developed estimates of the following: (1) Maximum upper-bound individual carcinogenic risk posed by a practice; (2) incidence (i.e., cases per year) of cancer; and (3) number of people exposed to concentrations of non-carcinogenic pollutants that exceed the reference dose (RfD) or other Agency established health effects-based threshold levels. The Agency also employed an innovative methodology to calculate the potential number of people exposed to lead and cadmium above the health-based thresholds.

Estimated aggregate human health effects are provided for sewage sludge that is applied to agricultural lands, applied to non-agricultural lands, distributed and marketed, placed in monofills, and incinerated. The Agency used the same exposure methodologies in estimating the aggregate effects on the population as a whole that it used in assessing exposure the most exposed individual, plant, or animal (MEI).

To estimate the aggregate effects of sewage sludge use or disposal, the Agency applied the exposure assessment models somewhat differently from the way they were used to assess exposure to the MEI. In assessing exposure to the MEI, the Agency used a reasonable combination of worst-case exposure assumptions with upper-bound toxicity estimates. In the aggregate assessment, the Agency evaluated a range of parameters and often focused on average or typical assumptions for the exposure models. However, because the Agency used upper-bound estimates of carcinogenicity, the resulting aggregate cancer cases are upper-bound estimates.

Sewage Sludge Quality

To estimate human health impacts from sewage sludge use or disposal practices, data are needed on the distribution of pollutant concentrations in sludge among all publicly owned treatment works (POTWs). However, since there are, at present, no data on sludge quality for individual POTWs, the Agency relied on data from EPA's "40 City Study". The Agency developed three separate sludge quantities (50th-, 90th-, and 98th-percentile concentrations) using a logarithmic regression procedure based on the assumption that the POTW pollutant means are lognormally distributed across POTWs. This procedure is based on fitting a regression line to the data that expresses the relationship between the logarithms of the plant means and the percentile of distribution. The

estimated sludge concentrations were assigned to the actual inventory of POTWs according to the relative contribution of the industrial component of the wastewater flow, as reported by the POTW.

The uncertainties in sludge quality for organic pollutants affect the predicted human health effects. Because the Agency's analysis of the human health effects of organic pollutants relied on the "40 City Study" data, the analysis may underestimate the effects. With improved sampling and analysis protocols, the Agency may observe increased levels of the organic pollutants for which numerical limits are proposed, as well as additional organic pollutants in sewage sludge, thereby increasing the estimates of potential human health effects.

As previously explained, the Agency is gathering additional data on the concentration of organic pollutants in sewage sludge as part of the National Sewage Sludge Survey. When the data from this survey become available, EPA will re-evaluate the aggregate effects of organic pollutants. The Agency will publish the results of the survey in the "Federal Register" and will invite the public to comment on the data and analyses.

Cancer Cases

Aggregate cancer cases are derived assuming a linear non-threshold relationship between dose and risk. Annual cancer incidence attributed to a pollutant of a given carcinogenic potency is directly related to two factors. These are the size of the population considered and the average exposure within the affected population. The predicted incidence of cancer is an upper-bound prediction of the number of new cancer cases per year in the U.S. population that are attributable to sludge use and disposal. The actual incidence may be substantially less than predicted here and, in fact, may be zero. The incidence estimates are not, and should not be construed as, a predicted death rate.

Non-Cancer Health Effects

Aggregate non-cancer risks are expressed in terms of the number of people who are chronically exposed to a concentration of a pollutant that exceeds a fixed reference value. Exceeding the RfD implies a risk of an adverse health effect, but does not predict the occurrence of such an effect. For land application, distribution and marketing, monofilling, and incineration, the Agency compared the predicted time-averaged exposure to an RfD or

other health effect-based threshold value.

The number of people exposed to a given reference value depends not only on the population size and mean exposure, but also on the variability of chronic exposure within the population (coefficient of variation). For pollutants other than lead and cadmium, the exposure predicted from sludge use or disposal was simply added to a mean or typical background exposure and then compared to the RfD. The variability (i.e., coefficient of variation) of background exposure and human response within the population was not considered because it could not be estimated reliably. As previously discussed, exposure to concentrations that exceed an RfD implies increased risk but does not imply that an adverse health effect will occur. Because the Agency does not have the data to use a dose-response curve in generating RfD thresholds other than for lead, it cannot predict the incidence of a specific noncancer health effect. The Agency expects the incidence of such health effects to be less than the number of people who exceed an RfD threshold.

Cadmium And Lead Predicted Exposures

The Agency used a different approach for predicting adverse health effects from cadmium and lead from that used for other non-cancerous pollutants. For these two pollutants, sufficient data are available to support improved methods. Estimating health effects from cadmium or lead involves predicting the concentration of the pollutants in body tissue of exposed individuals. In turn, this "body burden" is affected by levels of environmental exposure. For cadmium, body burden is measured as the concentration (micrograms) of cadmium accumulated in a gram of kidney tissue ($\mu\text{g/g}$). For lead, it is measured as the concentration (micrograms) of lead in a deciliter of blood ($\mu\text{g/dl}$). For both metals, data are available to describe background levels of tissue concentrations in the U.S. population, to link levels of environmental exposure to expected increments in these tissue concentrations, and to link tissue concentrations to possible or expected health consequences. Separate health effects and background blood lead distribution data (population means and coefficients of variation) are available for men, women, and children. Adverse fetal effects from lead have been detected statistically for women with blood lead as low as $10 \mu\text{g/dl}$. Neurological and developmental effects

have been detected in children with blood lead between 10 and 15 $\mu\text{g}/\text{dl}$. For white men of age 40-59, blood level increases (even for levels as low as 7 $\mu\text{g}/\text{dl}$) have been found to be associated with increased blood pressure. Therefore, "threshold" values of 7, 10, and 10 to 15 $\mu\text{g}/\text{dl}$ were selected to represent blood lead levels above which adverse effects might be anticipated for men, women, and children, respectively.

Similarly, data are available describing cadmium concentrations (population means and coefficients of variation) in kidneys separately for smokers and non-smokers in the U.S. Adverse health effects from cadmium have been observed in adults with kidney cadmium levels exceeding 200 $\mu\text{g}/\text{g}$. Therefore, a "threshold" value of 200 $\mu\text{g}/\text{g}$ was used in estimating potential health effects from cadmium.

From these data, the Agency calculated the number of people with cadmium and lead levels exceeding the threshold values because of background exposures from sources other than sewage sludge. The Agency then predicted the incremental increase in the levels of cadmium and lead in the kidney or blood that could be attributed to sewage sludge use and disposal practices. The number of people exceeding the thresholds was again calculated as a function of the predicted population mean, assuming the same coefficient of variation. This latter calculation includes both the number of people who originally had levels of lead or cadmium exceeding the thresholds and the number of people whose blood or kidney levels would exceed the thresholds as a result of sludge use or disposal.

To determine the number of people who exceeded the thresholds for cadmium and lead because of sewage sludge use and disposal, the Agency subtracted the original number of people whose levels actually exceeded the thresholds from the number of people whose blood levels were predicted to exceed the thresholds after sewage sludge use and disposal. The key parameters in this analysis are background mean tissue concentrations, coefficients of variation, incremental increase in body burdens of cadmium and lead caused by sewage sludge use and disposal practices, and the cadmium or lead levels that may cause a health effect.

The "threshold" approaches described above were used to predict the number of exposed individuals potentially vulnerable to adverse health effects from sludge-related exposure to cadmium or lead. Not all of the individuals with cadmium or lead levels

above the selected thresholds, however, would be expected to experience actual health impacts.

In assessing health risks from lead, the Agency used additional techniques to estimate the number of individuals likely to suffer the effects under consideration. For example, the relationship between mean blood lead level in the white male population and expected blood pressure increases (diastolic pressure greater than 90 mm Hg) in that same population was determined using results from semi-log regressions of diastolic blood pressure versus blood lead and from a logistic regression of high blood pressure versus blood lead. As expected, the number of individuals whose blood pressure actually increases as a result of lead exposure from sludge is smaller than the number of individuals whose blood lead levels exceed 7 $\mu\text{g}/\text{dl}$ as a result of sewage sludge use and disposal. Similar methods were used to estimate other health effects from lead exposure and the results were used to supplement those from the "threshold" approaches.

Other Risks

The aggregate effects analysis does not address exposure from pathogenic organisms or from pathways that were not examined in the exposure assessment models (e.g., the effects of ingesting plants on which incinerator emissions have fallen). As discussed earlier in the preamble, the Agency is developing exposure assessment models for pathogens and for indirect pathways of exposure from sewage sludge incinerators. When these models are complete, EPA will expand its aggregate assessment analysis to evaluate the effects of these other risks.

The assessment does not quantify ecological effects or farm economic losses caused by plant or animal toxicity, even though some numerical limits in today's proposal are based on plant and animal toxicity values. Methodologies and data are not yet available to accurately estimate the ecological impacts from the use and disposal of sewage sludge.

The remaining portion of this discussion briefly describes the factors that are considered and the key assumptions that are made in the aggregate effects (i.e., incidence) analysis for each end use and disposal method. Generally, only a few pollutants contribute to the total adverse human health effects predicted for each method. These pollutants are identified and the incidence of human health effects from current use and disposal methods are projected.

Agricultural Land Application

Available data indicate that approximately 16 percent (i.e., 1.2 million dry metric tons) of all sludge is applied to agricultural and non-agricultural land. The Agency estimates that about three-fourths of this is used on agricultural land, with substantially more being used on pastures and feed crops than on crops intended for human consumption. Based on Agency estimates, there are 2,623 POTWs that apply sewage sludge, or distribute sewage sludge for application, to the land. Of these, 2,020 apply sewage sludge, or distribute sewage sludge for application, to agricultural lands.

In estimating the aggregate effects from the consumption of food grown on sludge-amended soil, the Agency evaluated the following pathways:

- Sludge-Soil-Plant-Human
- Sludge-Soil-Plant-Animal-Human
- Sludge-Soil-Animal (direct ingestion)-Human
- Sludge-Soil-Surface Water-Human
- Sludge-Soil-Ground Water-Human

In projecting the aggregate human health effects from applying sewage sludge to agricultural lands, risks associated with pathways of exposure involving air were not examined because the exposure assessment models did not show that these pathways would be significant sources of exposure.

The Agency has no data on how harvested crops and food products from different areas of the country are mixed into the national market place and distributed throughout the United States. Consequently, the Agency assumed complete national mixing of food products grown on sludge-amended soil, thus equally exposing the entire U.S. population. The complete mixing assumption has no effect on predicted cancer incidence because cancer incidence is determined by the average dose within the population. The complete mixing assumption tends to underestimate the number of persons who may exceed non-cancer RfDs because an average dose across the population is much less than an RfD. However, where a few individuals are exposed to a larger than average dose, this larger dose may be sufficient to cause an increase in the body burden to a level that exceeds the RfD, depending on the existing body burden of the individual.

Assuming that sludge is spread on land or ordinary productivity at a rate of 11 metric tons per year, the Agency estimates that, overall, 0.02 percent assumed for the average U.S.

consumer's diet is food grown on sludge-amended soils, which is substantially less than the 2.5 percent assumed for the MEI's diet.

Another difference between the aggregate analyses and exposure assessment analyses is that the Agency assumed a national average diet using the Tolerance Assessment System (TAS) in the aggregate analyses. As discussed earlier, the Agency is considering the use of the TAS diet for the exposure assessment model.

For the two exposure pathways involving plant uptake of pollutants from soil, the coefficients used to estimate the pollutant concentration in various types of crops per unit concentration in soil represent a key set of parameters. For the exposure pathways involving animal uptake from plants and directly from soil, the coefficients used to estimate the pollutant concentration in various animal products per unit concentration in the feed or soil are key parameters. In both cases, the Agency used the same values in the aggregate assessment that were used in the exposure assessment models. However the coefficients, particularly for metals, may overestimate the effect because the total metal in the soil was used, rather than the soluble or bioavailable fraction (i.e., portion of the metal that is absorbed by the plant).

One important limitation of the assessment of exposure through food is that projected effects are estimated only for sewage sludge applied in a single year. Multi-year applications were not evaluated. Thus, the effects would be underestimated for pollutants that remain in the soil for long periods of time without decomposing, especially the heavy metals.

Aggregate exposure through surface water contamination was estimated by applying the pollutant runoff modeling approach used in the MEI exposure assessment models. To obtain the aggregate pollutant runoff, the runoff per hectare predicted for typical sludge application was multiplied by the number of estimated sludge-amended hectares in each State. This aggregate runoff was assumed to be diluted into the estimated total surface water flow for each State. Aggregate human exposure was estimated assuming 2 liters per day intake by surface water users and 10.6 grams per day intake of fish from State waters. The degree of averaging used in this approach has no effect on the predicted cancer incidence, but does tend to reduce the predicted maximum risks and the predicted incidence of exceeding an RfD.

Aggregate exposure through ground-water contamination was estimated by applying the previously discussed CHAINMITEQ-AT123D approach. The area affected by each site was taken to be a 90 degree wide slice radiating 3 kilometers outward from the sludge-amended site. The ground-water concentration within this entire area was taken to be the maximum concentration predicted (over time) to occur at the centerline of the plume at a distance of 1.5 kilometers from the site. The population within this area was estimated assuming an average density of 0.13 ground water users per hectare (119 million ground water users distributed over the area of the United States).

Using the methods described above, the Agency projected that application of sludge to agricultural lands could result in maximum individual carcinogenic risks, summed across the 25 pollutants regulated under this practice, of 9×10^{-5} and in an upper-bound cancer incidence of less than one case per year (0.17). The Agency projects that 921 people would exceed an RfD, and that all but one case is due to lead. The number of adverse lead effect cases resulting from this exposure is estimated to be 38.

Non-Agricultural Land Application

The Agency estimates that 276,000 dry tons of all sludge is applied to the land in non-agricultural uses. Such land may be set aside for disposal, forest, or devastated land undergoing reclamation.

The Agency estimated aggregate effects from human exposure to the pollutants through the following pathways:

- Sludge-Soil-Surface water-Human
- Sludge-Soil-Ground water-Human

For both pathways the Agency used the same approach as described for agricultural land application. By this means, the Agency estimated that application of sludge to non-agricultural land could result in maximum individual cancer risks, summed across the 25 pollutants regulated in this practice, of 2×10^{-6} and an upper-bound cancer incidence of less than one case per year (0.1). The Agency projects that 60 people will exceed a RfD because of lead. The number of cases resulting in adverse effects from this exposure is expected to be 3.5.

Distribution and Marketing

The Agency estimates that about nine percent (i.e., 705,000 dry metric tons) of all sludge generated is distributed or marketed by approximately 106 facilities. About 25 percent of this is

used in residential settings—half was assumed to be applied to home vegetable gardens and half to ornamental shrubs, flowers, and lawns.

The Agency estimated aggregate risks from human exposure to the pollutants through the following pathways:

- Sludge-Soil-Plant-Human (home gardening)
- Sludge-Soil-Human (children ingesting sludge-amended soil)

For home gardens, the Agency assumed an application rate of 11 metric tons per hectare. The exposed population was estimated to be 2.7 million individuals who garden and consume their own produce. For this exposed population, the following percentages of diet were assumed to consist of food grown on the sludge-amended soil: 27.0 percent of root and leafy vegetables, non-dried legumes, garden fruits, and corn; 15.0 percent of potatoes; and 7.0 percent of dried legumes. The soil-to-plant coefficients used in the aggregate assessment were identical to those used in the exposure assessment models for a home gardener. In evaluating children's sludge ingestion, the Agency assumed that a home gardener would mix the sludge into the soil to a depth of 15 centimeters. Children were assumed to ingest a sludge-soil mixture at a rate of 0.1 grams per day over a 5-year period.

Using the above methodology, the Agency projected that exposure through food grown in home gardens amended with sewage sludge products could result in maximum individual carcinogenic risks, summed across the 22 pollutants regulated in this practice, of 9×10^{-5} and in virtually no cancer cases (0.02 cases per year). Again lead was the primary pollutant causing 1552 persons to exceed the RfD. Most of this exposure (1,546 out of 1,552) results from food and most directly affects white adult males (1,463 of the 1,546), increasing their risk of elevated blood pressure. The number of cases resulting from 1,552 persons exceeding the RfD for lead is 95.

Monofills

Data available to the Agency indicate that 49 POTWs dispose of a total of 101,000 dry metric tons of sludge per year in monofills (approximately two percent of all sludge generated). To predict potential effects from these monofills, the Agency used the same fate and transport model for the aggregate assessment that it used for MEI exposure. The computer model used for the ground-water pathway was SLUDGEMAN, which consists of an unsaturated zone model, CHAIN, the

geochemical model, MINTEQA, and the saturated zone model, AT123D. The model for landfill vapor loss was based on a methodology adopted by EPA in 1987. It considers the landfill operating period with uncovered wastes, with shallow temperature cover, and with permanent cover.

The Agency did not model all 49 facilities because there were insufficient site-specific data. Rather, the Agency used a number of generic scenarios to account for the 49 facilities. The modeled scenarios included the following parameters: five POTW sizes (0 to 0.2 million gallons per day (mgd), 0.2 to 1.0 mgd, 1.0 to 10 mgd, 10 to 60 mgd, and 60 plus mgd), sludge pollutant concentrations that corresponded to the 50th-, 90th-, and 98th-percentiles from the "40 City Study" and nine hydrological and geological variables estimated (using the guidelines of the National Water Works Association, 1985, Reference number 25) to correspond to site-specific characteristics, where possible. Each facility was assigned to one of the modeled scenarios based on its size, percent industrial flow, and location.

The populations affected by each of the 49 facilities were estimated as follows. For the volatilization pathway, the Graphic Exposure Modelling System was used to obtain 1980 Census data and derive populations in 11 ring distances up to 10 kilometers from each landfill site. These populations were then scaled down to reflect only the downwind populations (i.e., those with potential for vapor exposure).

For the ground-water pathway, the Agency identified the locations of drinking water wells within 4 kilometers of each landfill and determined the number of persons serviced by those wells. For monofills in Utah and New Hampshire, the Federal Reporting Data System was used. For the remaining sites, State or regional authorities supplied the data. To account for the unidirectional flow of ground water, only those populations within the quadrant of directional ground-water flow were assumed to be at risk of exposure.

By this means, the Agency projected that exposure to the 18 pollutants evaluated for sludge disposal in monofills could result in a maximum individual carcinogenic risk, summed across all pollutants, of 3×10^{-3} and virtually no cancer cases (0.02 cases per year). The Agency projects that two people would exceed the RfD for cadmium and that 390 people would exceed the RfD for lead as a result of drinking water from wells in close proximity to monofills. The number of

adverse lead effect cases from those with blood lead levels exceeding the RfD is estimated to be 26. The Agency believes that it may have applied the models in a manner that substantially over-estimates the mobility of some pollutants, particularly lead, out of monofills and into ground water, thereby over-estimating the risks. The Agency intends to re-evaluate its modeling assumptions.

Incineration

Approximately 21 percent (i.e., 1.65 million metric tons) of all sludge is estimated to be incinerated by 169 POTWs that operate 282 incinerators. Each POTW was assigned to one of 10 model incinerators. The model incinerators represent several characteristics of the facility (such as stack height and sludge feed rate). One facility in each of the 10 groups of incinerators was modeled to determine its air dispersion characteristics by using the computer model, ISCLT, and supplemented, where appropriate, by LONGZ and COMPLEX I to account for terrain effects in urban and rural settings, respectively (see Reference number 46). This produced predicted dispersion factors in 24 concentric rings from 0.1 to 50 kilometers for each of the 10 modeled incinerators. These dispersion factors indicate the exposure concentration per unit rate of emission.

Additionally, there are 25 POTWs, generating 0.4 million dry tons of sewage sludge, that are currently using ocean disposal. Because of recently enacted legislation banning all ocean disposal of sewage sludge, these POTWs will have to shift to alternative methods. Incineration appears to be one of the likeliest disposal methods to be chosen by these 25 POTWs. It is by no means certain that all these POTWs will choose to incinerate their sludge; however, the ocean ban legislation is so recent that many POTWs do not even have preliminary plans in place. For analytical purposes, therefore, it has been assumed that all 25 POTWs will incinerate their sludge. This scenario is considered as the baseline practice for these POTWs. As such, the risk of incinerating the sludge generated by the 25 POTWs have been included in the baseline risk of incineration.

The Agency projects that if the 25 POTWs incinerate their sewage sludge, the POTWs would operate an additional 34 incinerators. The 25 POTWs were also assigned to model facilities based on the most likely type of facility that they would construct.

Metal control efficiencies varied significantly across the tested facilities. For an "average," the Agency used the

25th-percentile control efficiency of the four tested facilities as the expected efficiency. For assessing the exposure to the MEL, the Agency used the 10th-percentile of all sewage sludge incinerator test data (see Reference number 56).

For organic constituents, EPA took a different approach. Rather than starting with a sludge concentration and emission control efficiency, the analysis for organics begins with an emission rate. EPA started with an emission rate for organics because some of the organic compounds in the emissions are formed during the sludge combustion process. These products of incomplete combustion may account for a majority of the constituents in the emissions of an incinerator and for the risk from incinerator emissions.

The Agency analyzed data from four sewage sludge incinerators (three multiple hearth incinerators and one fluidized bed incinerator) that were recently tested to derive organic emission rates. The mean organic emission rate from the three multiple hearth incinerators was used as the organic emission rate of all the multiple hearth and electric arc incinerators in the United States. The actual organic emission rate from the one fluidized bed incinerator tested was used as the organic emission rate of all the fluidized bed incinerators in the United States.

For each of the 316 incinerators, the Human Exposure Model was used to estimate the populations residing within the 0.1 to 50 km concentric rings. The population was assumed to be exposed to the maximum concentration in each ring when the incinerators are operating under normal conditions. Thus, each of the 316 incinerators was assigned an air dispersion factor derived from a similar facility and the population surrounding the facility. From these data, population exposure and risks could be estimated in each concentric ring around each facility. Total population exposure and the effects of exposure at each facility and at all facilities combined were then determined.

In this way, the Agency projected that exposure to seven metals and total hydrocarbon emissions from sewage sludge incinerators could result in a maximum individual carcinogenic risk, summed across all pollutants, of 5×10^{-3} and an upper-bound estimate of 12 cancer cases per year. The Agency projects that incineration of sewage sludge would cause 794 people to have blood levels exceeding the RfD for cadmium and 129,835 to have blood levels exceeding the RfD for lead. The projected number of people adversely

affected from exposure to levels of lead above the RfD is 5,976.

Summary

Table VII-1 summarizes the results of the aggregate effects assessments

conducted for sewage sludge that is applied to land, distributed or marketed, monofilled, and incinerated.

TABLE VII-1.—AGGREGATE HUMAN HEALTH EFFECTS FROM CURRENT SEWAGE SLUDGE USE AND DISPOSAL

	LA-AG	LA-NON-AG	D&M	Monofills	INC.	Totals
Facilities/sludge:						
Number of POTWs.....	2,020	603	106	49	194	¹ 2,972
Volume of sludge (100s dry metric tons).....	926	276	705	101	1,651	² 4,083
Analysis:						
Pollutants.....	25	25	22	18	8	31
Environmental pathways examined.....	14	2	6	2	1	
Baseline Aggregate Effects:						
Cancer cases.....	0.17	0.01	0.02	0.02	12	12.3
Exceeding threshold:						
Lead.....	920	60	1,552	390	129,835	132,751
Cadmium.....	1	0	1	2	794	798
Lead cases.....	38	3.5	95	26	5,976	6,138.5
MEI risk.....	9x10 ⁻³	2x10 ⁻³	9x10 ⁻³	9x10 ⁻³	5x10 ⁻³	

¹ Does not include the estimated 2400 POTWs that dispose of their sewage sludge on the surface of the land.

² Does not include the estimated 200 dry metric tons of sewage sludge that POTWs dispose of on the surface disposal sites.

PART VIII: ALTERNATIVE REGULATORY APPROACHES

Introduction

This part of the preamble discusses the alternatives that the Agency considered in developing today's proposal. EPA is soliciting public comments on these approaches and welcomes suggestions for other appropriate approaches that the Agency should consider in establishing standards for the use and disposal of sewage sludge.

Over the years, EPA has developed different regulatory approaches depending on the legal requirements of a particular statute, surrounding issues, uncertainties, and information bases. Other EPA statutes covering the same pollutants or activities have very different legal requirements from section 405(d) of the CWA. The following discussion examines how different statutes mandate the way in which EPA is to establish regulatory requirements.

The U.S. Court of Appeals in the *Vinyl Chloride Decision* (*Natural Resources Defense Council, Inc. v. EPA*, 824 F.2d 1146, D.C. Cir., 1987) ruled that under Section 112 of the CAA, the Agency must use a two-step process in making regulatory decisions for National Emission Standards for Hazardous Air Pollutants (NESHAPs). The court ruled that the first step is to define an acceptable risk based only on health factors and then to define a regulatory limit. In defining a regulatory limit, the Agency may consider cost, technological feasibility, and other relevant factors in providing an ample margin of safety, as long as the regulatory limit does not exceed the acceptable level of risk. As indicated in the Benzene Notice (53 FR

28496, July 28, 1988), depending on the policy approach selected by the Agency, EPA would set carcinogenic risk levels for NESHAPs between 1×10^{-6} and 1×10^{-4} .

Under the Safe Drinking Water Act (SDWA), the Agency first defines a goal to limit the concentration of the pollutant in drinking water (for carcinogens, the concentration goal is zero). After setting a goal, the Agency sets an enforceable standard (maximum contaminant level—MCL) based on feasibility. Under the SDWA, the enforceable standard may not necessarily achieve the goal set for the pollutant, but is established at a level that is safe for human health. The carcinogenic risk levels for drinking water MCLs generally range from 1×10^{-6} to 1×10^{-4} .

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA) explicitly provide for balancing health and costs in decision making. The risk levels established under FIFRA range from 1×10^{-6} to 1×10^{-4} , depending on the type of exposure involved. Applicator exposure is generally in the range of 1×10^{-4} and dietary exposure is generally in the range of 1×10^{-6} . The regulatory limits under TSCA are driven by a balancing of economic analyses and exposure analyses, with the exposure analyses taking into consideration adverse health effects other than carcinogenicity.

Under the Resource Conservation and Recovery Act (RCRA), Subtitle D (non-hazardous wastes), the Agency sets standards to protect human health and the environment based on the reasonable probability that municipal solid waste landfills (MSWLFs) will

cause adverse effects. The standards are established taking into consideration the "practical capability" of the facilities. The Agency is proposing that States establish ground-water protection standard remedies for carcinogens in the range of 1×10^{-7} to 1×10^{-4} (see 53 FR 33314, August 30, 1988).

However, under Subtitle C of RCRA (hazardous wastes), there is no provision for the consideration of costs or the practical capability of a facility to meet the standards. The standards developed by the Agency under RCRA Subtitle C are those that are necessary to protect human health and the environment. The Agency will soon propose standards that prohibit hazardous waste incinerator emissions for metals from exceeding a summed carcinogenic risk level of 1×10^{-5} .

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) directs the Agency to set standards for cleanup by taking into consideration the relative degree of risk to human health and the environment. Under CERCLA, the Agency has set standards based on carcinogenic risk levels of 1×10^{-7} to 1×10^{-4} , with 1×10^{-6} as the point of departure for the analysis.

As shown, each statute is unique. Therefore, the regulatory approach and limits developed under one statute may not be appropriate for those developed under another statute. Before comparing regulatory requirements, the legal requirements of the authorizing statute must be examined.

In developing a regulatory approach, one of the principles guiding EPA was to propose reasonable standards. Section 405(d)(2)(D) of the CWA requires the Agency to establish management

practices and numerical limits that are "adequate to protect public health and the environment from any reasonably anticipated adverse effects of each pollutant." The Agency examined the effect of long-term pollutant exposure when sewage sludge is used or disposed of under conditions that could: (1) Increase the toxicity and potency of a pollutant in the environment; (2) speed the movement of a pollutant into and through the environment; or (3) intensify the adverse effect the pollutant may have on human health or the environment.

This approach accounts for potential data inadequacies, but does not protect against every conceivable worst-case situation. For example, we assume that a monofill may be located in sandy soil rather than in heavy clay soil because pollutants move faster through sandy soils than through clay soils. We also assume that 2.5 percent of the diet of the most exposed individual (MEI) comes from food grown on sludge-amended soil. By comparison, an average individual's diet contains only 0.025 percent of food grown or raised on sludge-amended soil. In applying sewage sludge products to the home garden, we assume that the homeowner mixes the product into the soil or that climatic forces, particularly rain, filters the sludge product into the soil profile. This assumption means that in evaluating the effect of a child inadvertently ingesting dirt when playing in a garden, EPA analyzed the effect of a child eating a sludge-soil mixture rather than pure sludge. The Agency analyses also assumed that a child, from the ages of one through five, inadvertently ingests 0.1 gram per day of a sludge-soil mixture rather than the 0.5 to 5.0 grams per day for a child exhibiting PICA behavior.

EPA believes that the combination assumptions protects individuals from events that are likely to occur and meets the statutory provision to protect public health and the environment from "reasonably anticipated adverse effects of a pollutant". In taking such an approach, the Agency recognizes that some risks may not have been fully evaluated or may remain after regulation. Individuals who do not follow label instructions (e.g., prevent children, particularly those exhibiting PICA behavior, from mouthing sewage sludge), or those who illegally grow or take all of their food stuffs from land where the growing or taking of food is prohibited (e.g., forests where sludge has been applied), may receive higher doses of a pollutant than the level used in developing the numerical limits for

the proposed rule. However, we expect that few, if any, individuals will receive higher doses of a pollutant than the doses used to establish the standards.

Alternative Approaches for Establishing Numerical Pollutant Limits

In developing a regulatory approach for establishing the management practices and numerical limits (standards) that would safeguard public health and the environment, the Agency examined the use or disposal methods and the probability that individuals would be exposed to pollutants from these methods. EPA identified the type of the risks involved, (e.g., breathing air with higher levels of pollutants, drinking water with pollutant levels exceeding the MCLs for drinking water, etc.) and also examined the possibility of special populations at greater risk (e.g., small children playing in gardens where sewage sludge products had been applied, the effect of lead on adult males). The Agency also examined whether individuals voluntarily incurred the risks. For example, risks associated with breathing more contaminated air by individuals living in close proximity to an incinerator are involuntarily-incurred and, therefore, more unacceptable than risks associated with using a properly labeled sewage sludge product in a garden. Finally, before developing alternative approaches, EPA used exposure assessment models to project the effect on an individual receiving a maximum dose throughout an average lifespan of 70 years. Aggregate effects analyses were used to project the incidence of adverse health effects from sewage sludge use or disposal on the population as a whole (i.e., the resulting number of cancer cases, carcinogenic risk, number of lead cases, and the number of people exposed to concentrations of non-carcinogenic pollutants above a reference dose—RfD).

In considering a regulatory approach, EPA primarily focused on two types of risks—risks to individuals receiving the maximum dose and risks to the population as a whole. Using the models and methodology discussed in Parts IV and VII of the preamble, EPA projected that the incremental individual carcinogenic risks from the five disposal practices range from 2×10^{-8} for land application to non-agricultural land to 5×10^{-2} for incineration (see Table VIII-1). The analyses show that, based on incremental carcinogenic risk, the five use or disposal methods employed by 5,367 facilities may contribute 12.3 cancer cases annually. However, the Agency could not project the type and severity of these cases. EPA also

projected that out of 132,751 people whose blood lead levels exceeds the RfD, 6,138.5 would exhibit adverse lead effects, primarily due to elevated blood pressure in adult males. Most of this exposure is attributed to the incineration of sewage sludge. These analyses show that, depending on how sewage sludge is used or where sewage sludge is disposed of, individual exposure may be high, particularly in the case of lead.

The Agency developed four regulatory approaches for the use and disposal of sewage sludge. Each of the approaches places greater emphasis on reducing an individual's or other organism's exposure to a pollutant. However, the Agency examined both the individual and aggregate effect of each alternative to balance the uncertainties in the analyses. Because of the data available, greater emphasis was placed on the human health rather than the environmental effects. However, where environmental effects could be identified, even qualitatively, they were considered.

There are differences of opinion concerning the emphasis that should be placed on individual or aggregate risk. Some take the view that individual cancer risk is the most, or the only, important measure. Arguments that favor addressing individual risk maintain that no individual should be at high risk and that consideration of the number of people at risk leads to acceptance of higher individual risk when few people are exposed. Furthermore, the latter approach leads to the inequity of having the acceptable risk to an individual depend on the number of people similarly exposed. The limitation of using maximum individual risk alone is that the measure does not indicate how many people may be affected. It only relates the carcinogenic risk to the MEI.

Arguments in favor of examining the aggregate risk are that incidence is an appropriate measure of total public health impact. Therefore, incidence is a good indicator of whether an approach adequately protects public health.

For a rule, such as today's proposal, that covers both carcinogenic and non-carcinogenic pollutants, there is another disadvantage of using only an MEI or an aggregate analysis as a single measure of whether an approach adequately protects public health and the environment. As discussed earlier, methodologies and data do not yet exist, except for lead, to correlate differing levels of exposure to non-carcinogenic pollutants with incidences of an effect. The only measure is the number of

people exposed to a level above a Rfd. This may have little meaning for individual risk. While any exposure to carcinogens is considered a case, the same assumption can not be made for non-carcinogens.

In addition, the Agency typically weighs the aggregate effects estimates along with maximum individual or average cancer risk estimates when evaluating a particular category of like risks (i.e., the number of individuals exposed to a particular pollutant from a particular type of facility). Some observers question the relevance of adding risks, in a rule such as today's proposal, when risks from different types of pollutants present different types of risks (i.e., inhalation, ingestion, etc.) from different types of sources (i.e., incineration, land application for agricultural purposes, etc.).

Table VIII-1 and the following discussion describe the factors considered in developing the standards for today's proposal. The first two approaches accept the aggregate effects of current sludge quality. Approach III is directed solely to protecting the MEI and Approach IV uses a combination of MEI exposure and aggregate effects of current sludge quality.

Although the combination of approaches in Option IV is the Agency's

selection for purposes of the proposal, it is not the only possible combination. Commenters should review the proposal keeping in mind that there is flexibility to choose among the different regulatory strategies (the aggregate risk approach and the MEI risk approach) depending on such factors as evaluation of new information and the reassessment of incremental risk of sewage sludge use and disposal methods. For example, an alternative option might be to take an MEI risk approach for incineration and select an aggregate risk approach for all other use or disposal methods. The Agency specifically invites comment on this possible approach in addition to those discussed in more detail.

For the purpose of today's proposal, the aggregate risk approach is based on "existing sludge quality"—defined as the 98th percentile pollutant concentration shown in the "40 City Study." The 98th-percentile pollutant concentrations are calculated from a regression analysis of the values of each pollutant in the "40 City Study." The Agency selected the 98th-percentile concentration to prevent potential deviations from the pollutant concentrations in the "40 City Study" and to prevent increases in any risks associated with current methods of sewage sludge use and disposal. This

will ensure that sludge quality does not get worse and therefore assure the continuing validity of the risk assumptions underlying the Agency's regulatory control decisions. There could, of course, be alternative ways to define the "existing sludge quality" basis of the aggregate risk approach. One would be to use a different data base, such as the National Sewage Sludge Survey currently underway. A second would be to select a different pollutant concentration level as one determined to be adequately protective (i.e., the 95th, 99th, or 100th-percentile pollutant concentrations). Are there other data bases or percentile concentrations that the Agency should consider?

The Agency is soliciting comments on the suitability of using these approaches as the basis of setting standards for the use or disposal of sewage sludge. The benefits and costs of each option are discussed in detail in the Regulatory Impact Analysis. Note that the numbering of options 3 and 4 in the Regulatory Impact Analysis is different from those in the discussion below and in Table VIII-1. To avoid confusion the reader should focus on the content of each option's requirements when comparing this discussion with that in the Regulatory Impact Analysis.

TABLE VIII-1.—APPROACHES CONSIDERED FOR SETTING STANDARDS

Number of facilities affected	Volume of sludge affected in dry metric tons	Number of people exposed	Risk
Land application: 2623 Distribution & marketing: 106 Monofills: 49 Incineration: 169	Land application: 1,202 Distribution & marketing: 706 Monofills: 101 Incineration: 1,651	Land application: 226 M Distribution & marketing: 2.7M Monofills: 204,900 Incineration: 51 M	Land application: MEI cancer risk: 9×10^{-5} — 2×10^{-6} Cancer cases: 0.21 Lead cases: 41.5 Distribution & marketing: MEI cancer risk: 9×10^{-5} Cancer cases: 0.02 Lead cases: 95 Monofills: MEI cancer risk: 3×10^{-5} Cancer cases: 0.02 Lead cases: 26 Incineration: MEI cancer risk: 5×10^{-5} Cancer cases: 12 Lead cases: 5,836

TABLE VIII-1.—APPROACHES CONSIDERED FOR SETTING STANDARDS—Continued

Number of facilities affected	Volume of sludge affected in dry metric tons	Number of people exposed	Risk
I: Use existing regulations	II: Use the 98th-percentile pollutant concentrations to supplement existing regulations	III: Use the exposure assessment models for all use/disposal methods	IV: Use the exposure assessment models and the 98th-percentile pollutant concentration
<p>Description:</p> <p>Hazardous sludges regulated under 40 CFR Parts 261-268 and sludge with > 50 ppm of PCBs under 40 CFR Part 761</p> <p>Retains pollutant limits from existing regulations</p> <p>Supplements existing regulations with the toxicity characteristic pollutant concentrations in setting numeric limits</p>	<p>Hazardous sludges regulated under 40 CFR Parts 261-268 and sludge with > 50 ppm of PCBs under 40 CFR Part 761</p> <p>Retains pollutant limits from existing regulations</p> <p>Supplements existing regulations with the 98th percentile pollutant concentrations from the 40 City Study in setting numeric limits</p>	<p>Hazardous sludges regulated under 40 CFR Parts 261-268 and sludge with > 50 ppm of PCBs under 40 CFR Part 761</p> <p>Uses the exposure assessment model in setting numeric limits for all use/disposal methods, except when sewage sludge is incinerated, use the NESHAPS for Hg and Be and .25 of the NAAQS for Pb as the basis for the numeric limit</p> <p>Allows site-specific data and modeling to determine case-by-case numeric limits that would not exceed human health or environmental criteria</p>	<p>Hazardous sludges regulated under 40 CFR Parts 261-268 and sludge with > 50 ppm of PCBs under 40 CFR Part 761</p> <p>When the potential for high individual exposure is likely or when there are significant scientific uncertainties, use the exposure assessment models and when the potential for human exposure is low, use 98th percentile pollutant concentration from the 40 City Study.</p> <p>When sewage sludge is incinerated, use the NESHAPS for Hg and Be and .25 of the NAAQS for Pb as the basis for the numeric limit.</p> <p>Allows site-specific data and modeling when using the exposure assessment models to determine case-by-case numeric limits that would not exceed human health or environmental criteria.</p>
<p>Land application: Pollutant limits:</p> <p>Cancer: TC pollutant limits, 40 CFR Part 761 (PCBs) or 40 CFR Part 257 (PCBs)</p> <p>Non-cancer: TC pollutant limits or 40 CFR Part 257 (Cd)</p> <p>Management practices: As required by 40 CFR Part 257 & 40 CFR Part 761</p>	<p>98th percentile conc. 40 CFR Part 761 (PCBs) or 40 CFR Part 257 (PCBs)</p> <p>98th percentile conc. or 40 CFR Part 257 (Cd)</p> <p>As required by 40 CFR Part 257 & 40 CFR Part 761</p>	<p>1×10^{-5}</p> <p>Based on Rfd or DDI</p> <p>Protect public health and/or prevent gross abuse of the environment</p>	<p>1×10^{-4} or 98th percentile conc.</p> <p>Based on Rfd or DDI, or 98th percentile conc.</p> <p>Same as III.</p>
<p>Distribution & marketing: Pollutant limits:</p> <p>Cancer: TC pollutant limits, 40 CFR Part 761 (PCBs) or 40 CFR Part 257 (PCBs)</p> <p>Non-cancer: TC pollutant limits</p> <p>Management practices: As required by 40 CFR Part 257 and 40 CFR Part 761</p>	<p>98th percentile conc. 40 CFR Part 761 (PCBs) or 40 CFR Part 257 (PCBs)</p> <p>98th percentile conc.</p> <p>As required by 40 CFR Part 257, 40 CFR Part 761 and labels</p>	<p>1×10^{-5} and 1×10^{-6}</p> <p>Based on Rfd or DDI</p> <p>Requires labels listing management practices that protect public health and/or prevent gross abuse of the environment</p>	<p>1×10^{-4}</p> <p>Based on Rfd or DDI.</p> <p>Same as III.</p>
<p>Monofills: Pollutant limits:</p> <p>Cancer: TC pollutant limits, 40 CFR Part 761 (PCBs)</p> <p>Non-cancer: TC pollutant limits</p> <p>Management practices: As required by 40 CFR Parts 257, 258</p>	<p>98th percentile conc. 40 CFR Part 761 (PCBs)</p> <p>98th percentile conc.</p> <p>As required by 40 CFR Parts 257, 258</p>	<p>1×10^{-5}</p> <p>MCL</p> <p>Protect public health and/or prevent gross abuse of the environment</p>	<p>1×10^{-4}</p> <p>MCL.</p> <p>Same as III.</p>
<p>Incineration: Pollutant limits:</p> <p>Cancer: TC pollutant limits 40 CFR Part 761 (PCBs)</p> <p>Non-cancer: TC pollutant limits .25 NAAQS for Pb and NESHAPS for Hg, Be</p> <p>Management practice: As required by 40 CFR Part 60 Subpart O (NSPS)</p>	<p>98th percentile conc. 40 CFR Part 761 (PCBs)</p> <p>98th percentile conc. .25 NAAQS for Pb and NESHAPS for Hg, Be</p> <p>As required by 40 CFR Part 60 Subpart O (NSPS)</p>	<p>1×10^{-5}</p> <p>.25 NAAQS for Pb and NESHAPS for Hg, Be</p> <p>As required by 40 CFR Part 60 Subpart O (NSPS) and others that protect public health and/or prevent gross abuse of the environment</p>	<p>1×10^{-5}</p> <p>.25 NAAQS for Pb and NESHAPS for Hg, Be.</p> <p>Same as III.</p>

TABLE VIII-1.—APPROACHES CONSIDERED FOR SETTING STANDARDS—Continued

Number of facilities affected	Volume of sludge affected in dry metric tons	Number of people exposed	Risk
Land application: After regulation:			
Cancer cases reduced: 0	0.06	0.18	0.06.
Lead cases reduced: 0	4.5	42	21.
Number of POTWs out of compliance: 0	54	2623	278.
Incremental compliance costs (in \$ Million): \$4.1	\$9.9	\$244.3	\$15.2.
Distribution & marketing: After regulation:			
Cancer cases reduced: 0	0	0.02	0.02.
Lead cases reduced: 0	0	62	56.
Number of POTWs out of compliance: 0	0	35	35.
Incremental compliance costs (in \$ Million): \$0.5	\$0.6	\$25.4	\$7.8.
Monofill: After regulation:			
Cancer cases reduced: 0	<0.01	0.02	0.02.
Lead cases reduced: 0	0	26	26.
Number of POTWs out of compliance: 0	7	49	49.
Incremental compliance costs (in \$ Million): \$0.2	\$0.9	\$25.5	\$25.5.
Incineration: After regulation:			
Cancer cases reduced: 2.8	2.8	0.8	9.4.
Lead cases reduced: 5,121	5,134	4,889	5,163.
Number of POTWs out of compliance: 96	97	122	122.
Incremental compliance costs (in \$ Million): \$21.9	\$22.1	\$103.8	\$103.8.

TC = Toxicity Characteristic.

Approach I: Use Existing Regulations (Aggregate Approach)

The first approach considered by the Agency was to use existing regulations to establish numerical limits and management practices. In establishing numerical limits for sewage sludge that is incinerated, the Agency would use the NESHAPs for mercury and beryllium in 40 CFR Part 61, Subparts C and E, respectively, 25 percent of the National Ambient Air Quality Standards (NAAQS) for lead, and the particulate limitations and monitoring requirements in 40 CFR Part 60, Subpart O. In addition, the Agency would have also used numerical limits for cadmium and polychlorinated biphenyls (PCBs) and the pathogen reduction process requirements in 40 CFR Part 257 when sewage sludge is applied to the land. Under this approach, if existing regulations do not address a particular pollutant, EPA would have used the toxicity characteristic pollutant concentrations in 40 CFR Part 261 to determine if a sludge was hazardous. Therefore, standards for sewage sludge with hazardous concentrations of pollutants would not be established in Part 503. All approaches considered by the Agency similarly exclude sewage sludge with hazardous concentrations of pollutants from the Part 503 standards. As discussed later in Part IX of the preamble, for purposes of Section 405,

EPA is regulating hazardous sludge under the requirements in 40 CFR Parts 261 through 268 and sludge with 50 ppm or more PCBs under the requirements in 40 CFR Part 761.

The first approach was rejected immediately by the Agency because it would misuse the toxicity characteristic concentrations. The toxicity characteristic concentrations were developed to identify chemical concentrations in wastes that, if placed in improperly managed MSWLFs have the potential of causing an unacceptably high level of ground-water contamination. The regulatory thresholds do not purport to define a concentration that would be safe if used for growing food or feed crops. The toxicity characteristic concentrations, if used in the exposure assessment models, would result in concentrations exceeding the human health criteria for the disposal practice. Therefore, if existing pollutant concentrations in sewage sludge were to increase to levels near the toxicity concentrations, the projected risks posed by the current use or disposal methods (except for incineration) would increase. Limiting emission levels of sewage sludge incinerators to 25 percent of the NAAQS for lead would require incinerators to install wet electrostatic precipitators (ESPs). At present, States are not controlling lead emissions from sewage sludge incinerators. Therefore, the

controls for incinerators would reduce lead exposure cases by 5,155 and other carcinogenic cases due to metals by 2.8.

Approach II: Use The 98th Percentile Pollutant Concentration (Aggregate Approach)

The second approach considered by the Agency was to use existing regulations, as in the first approach. However, if existing regulations do not establish numerical limits, numerical limits corresponding to the 98th-percentile pollutant concentration in the "40 City Study" would be established. The 98th-percentile pollutant concentrations would be calculated from a regression analysis of the values of each pollutant in the "40 City Study" and would be used as a cap on allowable pollutant concentrations. This would preclude potential deviations from the pollutant concentrations shown in the "40 City Study" and prevent increases in any risks associated with current methods of use and disposal. In addition to management practices specified in existing regulations, such as pathogen reduction processes for the land application of sewage sludge in 40 CFR Part 257, the Agency would require that labels or information sheets accompany sewage sludge products that are distributed and marketed. These would inform users about the proper use of the product.

One advantage of such an approach would be few, if any, disruptions in the use or disposal of sewage sludge. For example, the Agency projects that only three percent of the sludge applied to agricultural lands would be disposed of in MSWLFs. Further significant lead reductions are not projected because the requirement limiting incinerator emissions to 25 percent of the NAAQS for lead is included in the first approach and carried forward in all approaches. A few more incinerators that fire sewage sludge with pollutant concentrations at the 98th-percentile concentration would have to be fitted with wet ESPs to come into compliance with the numerical limits. The Agency projects a total reduction of 2.9 cancer cases and 5,160 lead cases.

However, this approach does nothing to control the rate at which sewage sludge could be applied to agricultural crops. High rates of sewage sludge applied to land use for growing food-chain crops could result in residues that exceed the Food and Drug Administration's Action Levels and subject such crops to seizure. Furthermore, some of the pollutants at the 98th-percentile pollutant concentrations shown in the "40 City Study", if disposed of in monofills, would exceed the pollutant's MCL for drinking water. In addition, this approach does not significantly reduce the projected carcinogenic risk to an individual from sewage sludge disposed of in monofills (3×10^{-3}) or from incineration (5×10^{-3}).

Approach III: Use the Exposure Assessment Models for all Practices (MEI Approach)

The third approach that the Agency considered was to use the exposure assessment models in establishing numerical limits for all use or disposal methods. The exposure assessment models allow the Agency to limit not only the concentration of a pollutant in sewage sludge, but also the annual and cumulative loading rates for pollutants when sewage sludge is applied to land used for growing food-chain crops or distributed and marketed. This approach reduces the maximum individual exposure to carcinogens by one order of magnitude or more if the carcinogenic risk levels are within the range usually set by the Agency (i.e., 1×10^{-6} to 1×10^{-9}). There would not be significant decreases in cancer or lead cases because the Agency projects that more treatment works will incinerate their sewage sludge if they can no longer use their current use or disposal method. Incineration poses greater risks because (1) some of the products of incomplete

combustion in the emissions are very carcinogenic; (2) metals are carcinogenic through inhalation, but not through ingestion; and (3) more individuals are exposed to higher levels of lead.

There would be more reductions in the number of cancer and lead cases if the Agency had assumed that the sewage sludge failing the numerical limits would be disposed of in MSWLFs in compliance with the proposed requirements in 40 CFR Part 258 (see 53 FR 33313, August 30, 1988) rather than incinerated. The Agency did not assume that all of the sewage sludge failing to meet the numerical limits would be disposed of in MSWLFs because, in some areas of the country, there is insufficient landfill capacity.

The disadvantage of using the exposure assessment models for all use or disposal methods is that such an approach significantly disrupts the way in which sewage sludge is used or disposed of; 2,829 of the 5,300 POTWs would fail to meet the numerical limits. The Agency projects that all of the sewage sludge applied to agricultural land would have to be incinerated, placed in MSWLFs, or composted. Similarly, all sewage sludge distributed and marketed or placed in monofills would need to be incineration.

Another disadvantage of this approach is that some methods would be over-regulated by protecting individuals from highly improbable risks. For example, it is unlikely that an individual would ever obtain all of his or her food from forests to which sewage sludge had been applied.

Approach IV: Use the Exposure Assessment Models and the 98th-Percentile Pollutant Concentration (Combined Aggregate and MEI Approach)

The final approach that the Agency considered, and the one on which the Agency is basing today's proposal, uses a combination of aggregate and MEI analyses (i.e., the second and third approaches). The Agency is proposing to use existing regulations, the NESHAPs for mercury and beryllium and 25 percent of the NAAQS for lead when sewage sludge is incinerated. EPA is also proposing to use the exposure assessment models to establish numerical limits, as in the third approach, when individuals are likely to be exposed to high levels of pollutants in sewage sludge or when there are significant scientific uncertainties about the effect of a particular sewage sludge disposal practice. As discussed in the next section of this part of the preamble, standards would be based on a higher

carcinogenic risk (i.e., 1×10^{-4} and 1×10^{-5}) and 1×10^{-6} .

When individuals are unlikely to be exposed to the pollutants in sewage sludge, the Agency is proposing to set numerical limits that correspond to the 98th-percentile pollutant concentration in the "40 City Study". As in the second approach, the 98th-percentile concentration is a cap on the allowable concentration of a pollutant in sewage sludge that precludes significant deviations from the concentrations shown in the "40 City Study" to avoid increased risk from the disposal of sewage sludge.

The 98th-percentile pollutant concentration would apply to the application of sewage sludge to land uses for non-agricultural purposes (i.e., forests, reclaiming lands, etc.), a practice on which human dietary impacts are negligible. The 98th-percentile pollutant concentration would also apply to the disposal of sewage sludge on surface disposal sites, which are generally small, are located away from population centers, and are usually located on property owned by the treatment work. The Agency believes that there would be little, if any, likelihood of exposure to the pollutants from these two use and disposal methods.

The advantage of using the exposure assessment models along with the 98th-percentile pollutant concentrations is that the approach targets those methods of use or disposal that pose the most risk for reduction in risks. This significantly reduces the cancer and lead adverse health effects resulting from the disposal of sewage sludge. By implementing this approach, the Agency projects a reduction of 9.5 cancer cases and 5,266 lead cases.

As shown in Tables VIII-1 and more fully discussed in the Regulatory Impact Analysis, the proposed regulatory approach results in the greatest reduction in cancer and lead cases. There are more benefits in Option 4 than in Option 3 even though the carcinogenic risks are established at a less protective level in Option 4 (i.e., 1×10^{-4} and 1×10^{-5}) than in Option 3 (i.e., 1×10^{-5} and 1×10^{-6}) because, under Option 3, more POTWs that cannot meet the numerical limits with their current use or disposal methods switch to incineration. In Option 3, all 2,623 POTWs that land apply sewage sludge fail the criteria and 260 of these POTWs are expected to shift to incineration as a compliance strategy. Distribution and marketing shifts reduce the net benefits in Option 3 as compared to Option 4. Under Option 3, 35 POTWs that

distribute and market sewage sludge are expected to incinerate their sludge, while under Option 4 only 10 POTWs are expected to do so. Although the controls placed on incineration greatly reduced the adverse health effects of incinerating sewage sludge, fewer benefits are realized because of the assumption that more sewage sludge will be incinerated.

As indicated above, our aggregate effects assessment identified greater risks from incineration even though the incinerators meet the numerical limits. The increase in the number of adverse health effect cases from incineration is due to several factors. First, the aggregate effects analysis in incineration accounted for a greater number of carcinogens that may be in the form of products of incomplete combustion in the emissions of an incinerator. Second, the metal pollutants (i.e., arsenic, cadmium, chromium and nickel) are carcinogenic through inhalation but are not carcinogenic through ingestion. Finally, more people have greater levels of exposure to lead near incinerators, thereby increasing the number of people who would exceed the threshold values.

The Agency anticipates that 509 out of 5,300 facilities will have to find alternative use or disposal methods. About 22 percent of sewage sludge applied to agricultural lands would have to be applied to non-agricultural lands or placed in MSWLFs. Similarly, the Agency estimated that approximately 30 percent of the sewage sludge distributed and marketed would be incinerated or placed in MSWLFs. All of the sewage sludge placed in monofills would have to be incinerated or placed in MSWLFs.

Another disadvantage of the proposed approach is that it focuses almost exclusively on human health effects, leaving the potential for toxicity values of non-agricultural plants and animals to be exceeded. Our analyses show that if 50 metric tons of sewage sludge (on a dry weight basis) were applied to a hectare of non-agricultural land and if the sewage sludge included concentrations of copper, zinc, and lead at their 98th-percentile value, the pollutant loadings of copper and zinc would exceed the assumed phytotoxicity value for plants (lettuce).

However, the Agency does not believe that the 98th-percentile pollutant concentrations will cause significant or widespread adverse environmental impacts in actual practice. Metal concentrations are likely to be less than those in the "40 City Study" because those data were collected prior to the implementation of pretreatment programs.

In addition, field studies in Michigan, Washington, Pennsylvania, Ohio, Illinois, West Virginia, Virginia, and Alabama strongly suggest that the application of sewage sludge to non-agricultural land will not cause significant or widespread adverse environment effects. These field studies indicated that when sewage sludge is used to stimulate tree growth in forests or to establish a vegetative cover on lands ravaged by strip mining or construction activities, most of the pollutants are bound or immobilized in the soil even when high rates of sludge (30 to 300 metric ton per hectare) are applied. Even in acidic forest soils, research at the University of Washington has found no problems with metals following sludge application (see Reference number 37). Studies have found that the pollutants do not leach below the soil profile into the ground water (see Reference numbers 9 and 33) or substantially elevate pollutant levels in plants or animals (see Reference number 2). The increased forage for wildlife in forests seems to outweigh any increase in the animals' trace metal body burden.

In addition, by establishing vegetative cover on drastically disturbed lands, the vegetative cover significantly reduces the heavy metals in runoff from previous mining activities (see Reference numbers 33 and 31). The vegetative cover also holds the soil on these marginal lands, thereby reducing high erosion rates and surface water quality impacts (see Reference number 33).

Concerns have been raised about the conversion of lands receiving sludge with the 98th-percentile pollutant concentrations to more sensitive uses with greater potential for human food-chain impacts, such as agricultural operations or residential uses. Before much experimental data were available, researchers hypothesized that, over time, after sludge was no longer applied, soil bacteria would break down the organic matrix of the organically-bound sludge and free metal ions. Then, supposedly, the free metal ions would become available and plants would absorb high levels of these metal ions (see Reference numbers 7, 17, and 6).

This hypothesis, however, has not been demonstrated in field studies done on crops grown on sludge-amended soils. Long-term observations show that the availability of metallic pollutants for absorption by the plant remained the same or decreased over time after sludge applications had ceased (see Reference numbers 34 and 66).

A sludge field study in Illinois, where annual applications were made for three consecutive years at agronomic rates,

showed that when sludge application had stopped, the metal concentrations in a variety of crop tissues decreased rapidly with each successive crop (see Reference numbers 64, 70, 20, and 8). Based on these results, there is no reason to believe that metals derived from sewage sludge will become more available to a plant after application has ended.

Further, the Agency does not believe organic pollutants will pose significant problems. Most of the non-persistent trace organics readily volatilize and degrade in the presence of sunlight and soil microorganisms. The fate of non-persistent organic chemicals, applied to soil has been extensively studied, but usually as pure compounds and not in a sludge matrix. Trace amounts of these chemicals are strongly bound to soils, especially if organic matter is also present. Therefore, these organic chemicals are unlikely to leach to ground or surface waters or be taken up by plants (see Reference numbers 15, 6, and 1).

Samples of sludge-amended and control site soils have also been analyzed for persistent organic compounds. These studies indicate that sludge application did not significantly increase the levels of persistent organic pollutants over the background or control site levels (see Reference numbers 32 and 4).

Based on the aggregate effects analyses, the Agency believes the 98th-percentile pollutant concentration adequately protects public health and the environment, if the sewage sludge is used or disposed of in accordance with the requirements in the proposal. However, the Agency is soliciting comment on the approach.

Alternative Carcinogenic Risk Levels Considered

The Agency did not examine alternative RfDs for non-cancerous pollutants. For non-cancerous pollutants, the Agency establishes a threshold value (such as a blood lead level) above which some adverse health effects may occur. Available statistical information for most non-cancerous pollutants is not sufficient to determine the chance that one threshold value or another will produce a specific adverse human health effect. Alternative threshold values, RfDs, are examined when the Agency sets the threshold values. For this rule, EPA used the RfD listed in the Agency's Integrated Risk Information System (IRIS). Part XIII of the preamble describes how to access IRIS and obtain the studies used to establish an RfD for a pollutant.

However, the Agency did examine alternative carcinogenic risk levels in establishing numerical limits for the use or disposal of sewage sludge. Since any exposure to a carcinogenic pollutant poses some risk of developing cancer, numerical limits are established on the basis of an acceptable risk such as one chance in 10,000 (1×10^{-4}) of developing cancer. Rather than set a uniform carcinogenic risk target for the use and disposal methods covered by today's proposal, the Agency evaluated each method individually. This approach allowed the Agency to consider and isolate the risks posed by a particular method.

EPA has selected an incremental carcinogenic risk target of 1×10^{-4} for sewage sludge used in the production of agricultural crops, the distribution and marketing of sewage sludge products, and the disposal of sewage sludge in monofills. This target was selected because the analyses do not indicate significant carcinogenic risk (i.e., 0.22 cancer cases per year from these methods combined).

The Agency's analyses indicated that incineration poses more carcinogenic risk than do other use or disposal methods. Incineration may expose 51 million people to varying levels of carcinogenic risk resulting in 12 cancer cases. To reduce this carcinogenic risk and to compensate for examining only one pathway of potential exposure (i.e., the inhalation pathway—see discussion in Part IV on the indirect pathways of exposure), the Agency is proposing to regulate the incineration of sewage sludge such that the carcinogens in the emissions do not exceed an incremental unit risk of 1×10^{-5} . The unit risk estimate of 1×10^{-5} is comparable to the Agency's hazardous waste incinerator programs.

If incineration were regulated at a unit risk of 1×10^{-4} there would be 165 more lead cases and 6.6 more cancer cases. The Agency estimates that compliance costs would be reduced by approximately \$62 million. The Agency specifically invites comments on the merits of selecting a 1×10^{-4} incremental carcinogenic risk target for incineration.

The Agency considered an incremental carcinogenic risk level of 1×10^{-6} . The option was rejected because, as explained above, our analyses indicate that such an approach would lead to the incineration of greater volumes of sewage sludge with a reduction in the health benefits. Furthermore, there is considerable uncertainty in projecting the number of cancer cases. When that number is already small (for other than incineration), there is increased

uncertainty in projecting further reductions.

Carcinogenic risk targets are applied pollutant-by-pollutant in all use or disposal practices, except for the organic pollutants in the emissions of sewage sludge incinerators. As discussed in Part IX of the preamble, the Agency is setting a limit on the total hydrocarbon emissions from a sewage sludge incinerator rather than on each individual organic pollutant. Therefore, the Agency developed the weighted average risk specific concentration for the carcinogenic organic compounds listed in IRIS. This is comparable to setting a pollutant-by-pollutant risk specific concentration for the metals in incinerator emissions.

In setting carcinogenic risk targets pollutant-by-pollutant, rather than requiring the mixture of pollutants in sewage sludge to meet a specific risk target, there is potential for the summed risks of all the regulated pollutants to exceed the proposed risk targets of 1×10^{-4} and 1×10^{-5} . In examining the potential for the summed risk to significantly exceed the proposed risk levels, the Agency found it to be highly unlikely.

The Agency analyzed a total of 30 facilities using the "Descriptive Statistics on Contaminants in Municipal Sludge Based on the EPA 40-POTW Study" (Reference number 69) to determine the ratio of the total cancer risk of the pollutant mixture to the cancer risk from the worst or highest risk pollutant for each use or disposal practice. In most of the 30 sludge disposal situations considered, one pollutant dominated the risk. Only in three of the 30 situations did the worst pollutant account for less than half of the total risk. On the average, the risk from the mixture was 1.4 fold greater than the risk of the worst pollutant. This ratio varies case by case as shown in Table VIII-2. It has a range of 1.0-3.2, and a median value of 1.1. Thus, if the worst pollutant is regulated to a risk of 1×10^{-4} , the expected value of the risk of the mixture would be 1.4×10^{-4} .

TABLE VIII-2.—RANDOMLY SELECTED PLANTS—RATIO OF TOTAL RISK FROM MIXTURE TO RISK FROM WORST POLLUTANT

	Plant No.	Ratio
Incineration (14 pollutants)	23	1.04
	25	1.38
	04	1.29
	18	1.24
	30	1.26
	35	1.17
	17	1.60
	28	1.08

TABLE VIII-2.—RANDOMLY SELECTED PLANTS—RATIO OF TOTAL RISK FROM MIXTURE TO RISK FROM WORST POLLUTANT—Continued

	Plant No.	Ratio
Land Application (12 pollutants)	22	1.80
	40	1.78
	13	1.00
	01	1.36
	05	3.23
	06	2.28
	07	1.83
	38	1.00
	27	1.02
	28	1.00
D&M (8 pollutants)	29	1.00
	08	1.01
	36	1.00
	15	1.01
	29	1.19
Monofill (10 pollutants)	39	1.00
	13	1.04
	25	1.49
	32	2.32
	27	1.03
Mean	22	1.05
Median		1.35
Range		1.13
		1.00-
		3.23
Number of cases		30

These results were affected by the assumptions used when a pollutant was not detected. For some publicly owned treatment works (POTWs), available data allowed the Agency to use the detection limit when the pollutant was not detected. For other POTWs, the data only allowed the Agency to use zero when undetected. High values for the risk ratio tend to occur when the detection limit is used. For example, the high ratio of 3.23 (in land application) occurred for a facility where only one of the 12 pollutants was actually detected and the detection limits for the pollutants were used. The low value of 1.00 occurred where only one pollutant was detected. Therefore, EPA believes that the summed risk of all pollutants would not make a significant difference (i.e., raise the risk of a use or disposal practice from 1×10^{-4} to 1×10^{-3}). The Agency believes that setting numerical limits to meet a carcinogenic risk target on a pollutant-by-pollutant basis meets its statutory directive to establish limits for those pollutants that may interfere with the safe use or disposal of sewage sludge. Ensuring that pollutants do not exceed a summed risk would be very difficult. Numerical limits within a permit would have to be constantly re-adjusted to account for different pollutant concentrations in the sewage sludge. Such an approach would be inconsistent with the Agency's principle of developing a rule that can be

implemented. However, the Agency is soliciting comment on its belief that setting numerical limits for carcinogenic pollutants on a pollutant-by-pollutant basis adequately protects public health.

Concerns have been raised, however, that treatment works would allow individual pollutant concentrations to increase to a point where each pollutant would not exceed the carcinogenic risk level, thereby increasing the overall risk of a use or disposal method. The Agency believes this is highly unlikely because industrial dischargers must meet categorical pretreatment standards promulgated under other sections of the CWA. In addition to the categorical pretreatment standards for industrial dischargers, local pretreatment programs may further limit the discharge of pollutants into POTWs.

Alternatives to National Numerical Limits

As discussed in Part IV of the preamble, the exposure assessment models are designed to predict the long-term human health and environmental effects of using or disposing of sewage sludge by the methods covered in this proposal. Sensitivity analyses were performed on the models to identify conditions that could reasonably be anticipated. In conducting the sensitivity analyses, the Agency found that varying certain parameters made a significant difference in a numerical limit for a pollutant, without a pollutant exceeding the human health or environmental criterion. Factors such as type of soil and the depth of the soil between the surface and the ground water attenuate the migration of a pollutant into and through the environment. Details on the sensitivity analyses may be found in the Technical Support Documents for each of the use or disposal methods (Reference number 56, 57, and 58).

The Agency considered, but rejected, regulating the use or disposal of sewage sludge on the basis of only a single numerical limit for all use and disposal methods. A single pollutant concentration protective nationwide could over-regulate a use or disposal method because different methods pose substantially different risks. Such an approach also fails to recognize that certain environmental settings are better suited to assimilate or ameliorate the effect of pollutants than others.

The Agency also considered developing a "tiered" regulatory approach for treatment works that could not meet the national numerical limits or that did not want to conduct site-specific modeling for all the parameters in the model. Such an approach would establish intermediate numerical limits

based on varying a few model parameters at each tier. Treatment works would submit data for different parameters in the appropriate tier to the permitting authority and the permitting authority would verify that the treatment work's sewage sludge met the appropriate numerical limits.

One reason for rejecting the "tiered" regulatory approach was its complexity. Such an approach would be inconsistent with the Agency's principle of developing a rule that could be implemented easily. It would be impossible to include in the rule all possible variations occurring at a site. Another reason for rejecting the approach was that the Agency did not believe that treatment works would use the intermediate tiers. Rather than varying only a single parameter, the Agency felt it more likely that a treatment work would collect data on as many parameters as possible to determine if, by doing so, their sludge could meet the numerical limits of a disposal practice.

The approach that the Agency is proposing utilizes a combination of national numerical limits and case-by-case site-specific modeling. Depending on the disposal method, the Agency is establishing national numerical limits or providing an equation to calculate numerical limits. If a treatment work is unable to meet the national numerical limits, the permitting authority would calculate new numerical limits based on the physical conditions at a site that make a significant difference in a numerical limit. The parameters for which a treatment work may submit site-specific data are listed in the appropriate sections of the rule.

In some cases a treatment work may not need to collect data for all the parameters that may be varied in the model. The rule lists the values used in the models for the parameters that may be varied. Treatment works have the option of using the values that were used in the models or collecting, at their expense, site-specific data. The data would be submitted to the permitting authority to calculate a new numerical limit using the exposure assessment models developed for this proposal or other EPA-approved models. Information on the availability of the IBM PC compatible models used in establishing the numerical limits for this proposal is found in Part XIII of the preamble.

Recalculation of numerical limits based on site-specific data would be available to treatment works that dispose of their sludge in monofills or in incinerators. Site-specific adjustments in numerical limits would not be available

for the land application or distribution and marketing of sewage sludge. Based on the sensitivity analyses, the Agency did not find any physical parameters in the land application model that made a significant difference in the pollutant limits. Site-specific modeling would not be available for the distribution and marketing of sewage sludge because it is impractical to collect data on all sites where the general public may apply sewage sludge.

The Agency is soliciting comment on the approaches that it considered in developing the framework for today's proposal. The specific requirements included in today's proposal, as well as alternatives considered in developing the requirements, are discussed in Part IX of the preamble.

PART IX: DESCRIPTION OF 40 CFR PART 503

This part describes the standards EPA is proposing for the use or disposal of sewage sludge. The standards include pollutant limits, management practices, and other requirements that define a level of control that owners or operators of treatment works and users or disposers of sewage sludge must attain over the use or disposal of sewage sludge to adequately protect human health and the environment. The pollutant limits, management practices, and other requirements are specific to the method of use or disposal employed by treatment works use. This part follows the organization of the proposed rule to facilitate review and understanding of today's proposal.

General Provisions (Subpart A)

Purpose and Applicability (§ 503.1)

EPA is proposing minimum requirements that owners or operators of treatment works and users or disposers of sewage sludge must meet when the sludge is ultimately used or disposed of. The use or disposal methods included in today's proposal are: (1) Application to agricultural or non-agricultural land, (2) distribution and marketing, (3) disposal in monofills, (4) disposal on surface disposal sites, and (5) incineration. The Agency has determined that the requirements in today's proposal adequately protect health and the environment from any reasonably anticipated adverse effects of each regulated pollutant.

Local Community's Choice of a Use or Disposal Method

Although the Agency prefers local communities to reuse their sewage sludge for its nutrient and soil conditioning properties, section 405(e) of

the CWA reserves the choice of a use or a disposal method to local communities.

The pollutant limits EPA developed reflect the risk of each use or disposal method. In some cases, protection of public health and the environment require very stringent standards which would be very difficult for a local community to meet. For example, under the proposal, communities are unlikely to meet the limits that would allow them to dispose of sewage sludge in a monofill over a Class I ground water (i.e., an irreplaceable source of drinking water).

Section 503.1(b)(4) of the rule reiterates the statutory directive that the choice of any sewage sludge use or disposal method is a local one, as long as the treatment work, user, or disposer complies with the requirements in today's proposal.

Ocean Dumping Ban Act

EPA planned as part of its comprehensive sludge technical regulation to establish standards for the ocean disposal of sewage sludge which would adequately protect human health and the environment against any adverse effects of such dumping. The Marine Protection, Research, and Sanctuaries Act (MPRSA) establishes a comprehensive permit program for ocean-dumping activities. To implement its permitting requirement, Congress directed EPA to establish and apply criteria for reviewing and evaluating permit applications. These criteria include not only consideration of the effects of the proposed dumping on human health and the environment, but also on the need for the proposed dumping and the consideration of land-based alternatives to ocean disposal. Thus, the MPRSA requires EPA to weigh and balance a number of factors in determining whether or not to permit dumping.

The Ocean Dumping Ban Act of 1988, Pub. L. 100-688, November 18, 1988 prohibits any person from dumping sewage sludge into ocean waters after December 31, 1991. In addition, Congress limited ocean dumping during the interim period to those communities that were authorized to dump either under an MPRSA permit or court order as of September 1, 1988. Congress also prohibited dumping after August 15, 1989 unless an MPRSA permit has been obtained by that time. EPA is moving forward to issue permits for the limited universe of publicly owned treatment works (POTWs) eligible to continue dumping.

In addition, the Ocean Dumping Ban Act of 1988 also bans the ocean incineration of sewage sludge. EPA has

consistently interpreted the MPRSA as requiring a permit for incineration at sea because it is a form of dumping.

Therefore, because no permits for incineration of sewage sludge have been issued and incineration is not permitted under any outstanding court orders, the terms of the Ocean Dumping Ban Act of 1988 prohibit ocean incineration after the date of enactment, November 18, 1988.

EPA had contemplated that its Section 405 standards for ocean dumping would be an important element in the evaluation of environmental effects required by the MPRSA. In view, however, of the clearly expressed intention of Congress to eliminate the ocean dumping of sewage sludge by the beginning of 1992, EPA decided not to proceed further with development of ocean dumping standards. It is clear that any standards could not be promulgated until well after the date when the MPRSA permits must be in place and, thus, could not serve the stated purpose of providing environmental criteria for the assessment of ocean dumping applications.

Sludge Processing

The rule does not apply to the processing of sewage sludge before its ultimate use or disposal. Before ultimately using or disposing of sewage sludge, treatment works may use one, or a combination, of biological, chemical, physical, and thermal processes to increase the solids content of the sludge (i.e., by reducing its water content through heat or other processes) and to stabilize the sludge (i.e., by reducing or eliminating pathogenic organisms, odors, and volatile solids). Such processes improve the characteristics of the sludge for a particular disposal method and reduce the potential for public health, environmental, and nuisance problems. EPA requires the use of one or more of the treatment processes to reduce or kill pathogens before applying sewage sludge to land for agricultural and non-agricultural purposes, before distributing and marketing the sewage sludge, or before the disposal of sewage sludge in monofills or on surface disposal sites.

EPA is not specifying process operating methods or requirements for sludge entering or leaving a particular treatment process. The Agency believes that section 405(d) requires EPA to develop regulations for the final use or disposal of sewage sludge and that Congress did not intend for EPA to impose requirements on sludge processing as a part of the comprehensive regulation for sludge use and disposal. Rather, the Agency

believes that section 405(d) requires EPA to establish a "standard of quality" against which treatment works can measure the quality of their sludge—its pollutant concentrations—and determine (1) if further processing is needed, (2) if additional treatment limits should be imposed on its industrial dischargers, or (3) if the community should identify alternative practices for the safe management of its sludge. If, however, comments on these proposed rules indicate sufficient justification for establishing standards for sludge processing, EPA will consider such comments for future rulemaking proceedings.

Relationship to Other Requirements (§ 503.2)

As required by section 405(f) of the CWA, the requirements proposed today are to be implemented through permits. The pollutant limits, management practices, and other requirements specified for a particular end use or disposal method are to be included in the POTW's or generator's permit. The implementing permit mechanisms and the State program management requirements are described in Part X of this preamble.

State Authority (§ 503.3)

Anyone using or disposing of sewage sludge is obligated to comply with the requirements proposed today. However, as provided in section 405(d)(5) and section 510 of the CWA, States may impose more stringent requirements than those included in today's proposal.

Exclusions (§ 503.4)

This section of the proposal lists the methods of sewage sludge use or disposal that are not covered by today's proposed rule. In this portion of the preamble, the Agency discusses its rationale for these exclusions.

Industrial Sewage Sludge

The proposed rule will not cover the use or disposal of sewage sludge that is generated by privately owned treatment facilities treating domestic sewage along with industrial waste and wastewater. Such sludge will continue to be covered by rules promulgated under Subtitle C of the Resource Conservation and Recovery Act (RCRA) (40 CFR Parts 261 through 268) or under Subtitle D of RCRA (40 CFR Parts 257 and 258).

The Water Quality Act amendments of 1987 expanded the coverage of section 405(d) to industrial manufacturing and private processing facilities that treat domestic sewage along with industrial wastes and

wastewater. Although the legislative history of the Act clearly directs the Agency to impose requirements on any treatment work treating domestic sewage, and not just treatment works "primarily" treating domestic sewage (see 99th Cong. 2d Sess., H.R. Rept. 99-1004, October 15, 1986, p. 160), passage of the amendments in February, 1987 did not provide sufficient time to collect the data necessary to develop standards for such facilities in today's proposal.

At this time, the Agency does not have sufficient information on the characteristics of industrial sludge with a domestic sewage component to determine whether the models and data used to establish numerical limits for the use or disposal of municipal sewage sludge are appropriate for nonhazardous sludge generated by industrial facilities. The Agency recognizes the need to collect additional information on industrial wastes and on industrial waste disposal facilities as a basis for revising its regulations in 40 CFR Part 257 and for developing, if appropriate, additional regulations. As a first step in collecting additional information, EPA proposed, in a separate rulemaking, that industrial facilities notify the States and EPA of the volume of their sludge and the disposal methods and locations used (see 53 FR 33314, August 30, 1988). Once these and other data (e.g., viscosity, density, moisture content, and the organic carbon content of industrial sludge with a domestic sewage content) have been collected, the Agency will determine whether today's proposal should apply or whether additional regulations should be developed for industrial facilities that co-treat domestic sewage with industrial wastewater. The Agency anticipates that any additional requirements for industrial facilities treating domestic sewage along with industrial waste and wastewater would be developed under the joint authorities of sections 4004 and 4010 of RCRA and section 405(d) of the CWA.

Hazardous Sewage Sludge

The proposed rule will not establish standards for disposal of sewage sludge determined to be hazardous under 40 CFR Part 261. In previous **Federal Register** notices, EPA indicated it was considering excluding sewage sludge from regulation under RCRA Subtitle C once comprehensive sludge regulations were developed (see 51 FR 21658, June 1, 1986). The exclusion would be based in part on section 1006(b) of RCRA, which states:

The Administrator shall integrate all provisions of this Act for purposes of

administration and enforcement and shall avoid duplication to the maximum extent practicable, with appropriate provisions of the [CAA, CWA, FIFRA, SDWA, and MPRSA] and such other Acts of Congress as grant regulatory authority to the Administrator. Such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in this Act and in other acts referred to in this subsection.

However, rather than regulating both hazardous and nonhazardous sewage sludge under section 405(d) of the CWA, EPA has concluded it is appropriate to regulate all hazardous wastes, including sewage sludge, under a program specifically designed for hazardous materials. The Agency believes that this provides the public with greater assurance of the consistent regulation and management of hazardous materials. It also provides a strong incentive for any treatment work with hazardous sludge to improve the quality of its sludge through effective pretreatment. Thus, the standards for the disposal of sewage sludge in today's proposal apply only to non-hazardous sludge.

In determining whether their sewage sludge is hazardous, treatment works are to use procedures promulgated under 40 CFR Part 261, Appendix II. If the sewage sludge is hazardous, treatment works generating the hazardous sludge must comply with the applicable requirements of 40 CFR Parts 260 through 268. The Agency has made the determination that compliance with the requirements in 40 CFR Parts 261 through 268 constitutes compliance with section 405(d) of the CWA.

In the Spring, EPA will promulgate amendments to 40 CFR Part 261. The amendments will include additional toxicants to be considered in defining a waste as hazardous and introduce a new leaching procedure, the Toxicity Characteristic Leaching Procedure (TCLP). The regulatory levels that will be in 40 CFR Part 261 are the regulatory levels that will be used in determining if sewage sludge is hazardous.

The pollutants covered by today's proposal and those covered by amendments to 40 CFR Part 261 are not identical. In this proposal, specific limits are established for 17 pollutants for which there are no toxicity characteristic regulatory limits. The 17 pollutants are listed in Table IX-A.1. There are also toxicity characteristic regulatory limits for pollutants that are not covered by today's proposal. The two lists are not identical because the programs under which the lists were developed start from fundamentally different perspectives. The toxicity

characteristic regulatory limits are set for chemicals that are still used or manufactured and are likely to find their way to a landfill. The section 405(d) limits are established for those metals and organic compounds that are found in sewage sludge, whether or not the metals and organic compounds are still used in industrial processes. To the extent necessary, the Agency will expand the toxicity characteristic list of pollutants and the pollutants covered by today's proposal. Over time the lists of pollutants can be expected to overlap even more, but they are never expected to be identical.

Table IX-A.1—Section 405(d) Pollutants for Which There Are No Toxicity Characteristic Regulatory Thresholds:

Aldrin
Benzidine
Benzo (a) pyrene
Beryllium
Chlordane
Copper
Cyanide
DDT/DDD/DDE
Dieldrin
Dimethylnitrosamine
Molybdenum
Nickel
Polychlorinated biphenyls
Trichloroethylene
Zinc

Several municipal wastewater agencies believe that the proposed TCLPs would result in the classification of certain sewage sludge as hazardous. In 1986 and 1987, EPA tested 18 municipal sewage sludge samples using the new procedure and found that none failed. Although the results are preliminary and represent only a small percentage of the 15,000 POTWs, the Agency believes that municipal sewage sludge will generally pass the toxicity characteristic regulatory thresholds and be subject to the requirements in 40 CFR Part 503 rather than the requirements in 40 CFR Parts 261-268.

Incinerator Ash

The requirements proposed today do not cover the disposal of ash generated during the incineration of sewage sludge. Rules previously promulgated by the Agency in 40 CFR Part 261 through 268 and 40 CFR Part 257 and those proposed for 40 CFR Part 258 (see 53 FR 33314, August 30, 1988) adequately cover the disposal of incinerator ash. Sewage sludge to which incinerator ash has been added is covered by today's proposal.

Co-disposal of Sewage Sludge

Standards are not established in today's proposal for sewage sludge that is disposed of in a landfill with municipal solid waste. Rather, these standards are established in 40 CFR Part 258 which will include requirements for the disposal of sewage sludge in a municipal solid waste landfill (MSWLF). Compliance by treatment works with requirements of 40 CFR Part 258 when promulgated would constitute compliance with section 405. The standards were jointly proposed under the authorities of sections 4004 and 4010 of RCRA and section 405(d) of the CWA in 53 FR 33314, August 30, 1988.

To meet these standards, treatment works must ensure that the sewage sludge sent to MSWLFs is not hazardous, as defined by the regulatory limits in 40 CFR Part 261, and pass the Paint Filter Liquids Test.

As part of the August 30, 1988 notice, EPA made the determination that the proposed standards for MSWLFs meet the requirement of section 405(d) of the CWA that the Agency establish standards adequate to protect human health or the environment from any reasonably anticipated adverse effect of each pollutant. Section 405(d)(3) of the CWA provides that the Agency may promulgate design, equipment, management practice, or operational standards or combinations thereof if, "in the judgment of the Administrator, it is not feasible to prescribe or enforce a numerical limitation for a pollutant."

The Agency is proposing a single set of standards for a MSWLF in order to avoid imposing two distinct sets of requirements on a single facility. If the Agency had proposed separate requirements under the two applicable statutes, treatment works would not only have had to comply with whatever numerical limits were established under Part 503, but would also be responsible for ensuring that the MSWLF complies with the Part 258 standards. This would have placed an unfair burden on treatment works when other solid waste contributors were not held similarly responsible.

In lieu of holding treatment works responsible for the compliance of a MSWLF, the Agency is proposing today that treatment works send their sewage sludge to State-permitted facilities. EPA is soliciting comment on this requirement in recognition that few MSWLFs have State permits. The Agency is interested in the potential effect of this requirement on the 6,700 treatment works that send 41 percent

(3.2 million dry metric tons) of all sewage sludge generated to MSWLFs.

Co-firing Of Sewage Sludge

Today's proposal will not apply to sewage sludge that is fired in an incinerator with other solid waste. This excludes four facilities that currently fire waste streams consisting of between three and nine percent sewage sludge (on a dry weight basis).

The New Source Performance Standards (NSPS) for sewage treatment plants (see 40 CFR Part 60, Subpart O) apply to facilities when 10 percent or more of their waste stream consists of sewage sludge (on a dry weight basis). However, this 10-percent threshold no longer appears appropriate.

The configuration of systems firing municipal refuse are quite different from those that fire only sewage sludge. Municipal waste combustors (MWCs) generally use mass burn, modular, or refuse-derived fuel systems. Facilities firing sewage sludge most commonly use multiple hearth and fluidized bed systems. A facility designed primarily for firing solid waste cannot efficiently fire more than a small amount of sewage sludge because the highly aqueous sewage sludge reduces the combustion temperature of the incinerator. If a municipal solid waste stream includes 10 percent sewage sludge, which is typically 80 percent water, the sewage sludge reduces the BTU value of the waste stream by 30 percent. Therefore, from a technological standpoint, it is ill-advised for typical MWCs to fire a large volume of sewage sludge.

Currently, the Agency is studying how best to regulate facilities co-firing sewage sludge with municipal solid waste. On July 7, 1987, the Agency issued an advanced notice of proposed rulemaking (52 FR 2599) on revisions to the NSPS for new or modified MWCs under section 111(b) of the CAA and on emission guidelines for existing MWCs under section 111(d) of the CAA. Section 111(b) applies to sources after a rule is proposed and Section 111(d) applies to existing sources. At this time, the Agency has not determined how it will regulate facilities co-firing sewage sludge with municipal solid waste. In November 1989, the Agency anticipates that it will propose a NSPS for MWCs and will then address standards for sewage sludge in facilities that co-fire municipal solid waste with sewage sludge. Any recommendations or suggestions submitted as part of this rulemaking will be included in the Agency's deliberations on the NSPS for MWCs.

Deepwell Wet Air Oxidation System

The proposed rule does not apply to the location or operation of deepwell wet air oxidation systems. In these systems, sewage sludge flows down the center of two concentric verticle tubes and returns in the annular space. These verticle tubes (about a mile in length) are placed deep within the earth. Oxygen is injected into the liquid sewage sludge where, deep within the well, sufficient pressures and temperatures are reached to support the oxidation of the sewage sludge. This continuous flow system converts the organic waste into inert ash, carbon dioxide, and water. The effluent from these systems could be recycled back into the waste treatment plant or discharged in accordance with a National Pollutant Discharge Elimination System (NPDES) permit. Because these are fully enclosed recycling systems, with no emissions to the air and controlled discharges, if any, to surface water, the Agency does not believe such systems are comparable to the use or disposal methods included in today's proposal. As these systems are developed further, EPA will evaluate if it would be appropriate to develop numerical pollutant limits for the liquid sludge placed in and oxidized in the wells.

Septic Tanks

Today's proposal will not apply to the location and operation of septic tanks. Septic tanks are also excluded from the definition of "treatment works" because of Congressional intention that only treatment and processing of septage be subject to section 405 regulation. However, the septage collected from septic systems is included in the definition of sewage sludge. Thus, septage must meet the requirements in today's proposal when it is ultimately used or disposed of.

Septage is frequently collected and delivered to treatment works for processing, generally to reduce the levels of pathogenic organisms. However, other septage is collected and applied to the land without further processing or without monitoring the levels of pathogenic organisms. Under today's proposal, sewage sludge, including septage, must meet the requirements in Subpart F, if it is applied to the land. The Agency is soliciting comment on the effect of these requirements on the use or disposal of septage.

Marine Sanitation Devices

Today's proposal would only apply to the pumpings from marine sanitation

devices that are delivered to on-shore facilities for disposal. Generally the pumpings are collected in tanks at marinas and delivered to treatment works. Requirements in 33 CFR Part 159 specify requirements for the operation and maintenance of marine sanitation devices.

Definitions (§ 503.5)

The definitions included in this section of the rule are those generally applicable to all subparts of the rule. Each subpart includes special definitions that apply only to that subpart. Many of the definitions included in Subpart A are definitions that are included in section 502 of the CWA or have been included in numerous other Agency rules and will not be discussed here. The definitions discussed here amplify and reinforce the coverage of the rule.

Domestic Sewage

Domestic sewage is wastewater generated in households that is discharged to or otherwise enters a treatment work. Excluded from today's proposal is domestic sewage that privately owned treatment works treat along with industrial waste and wastewater.

Pollutant

Pollutant is defined as:

Those organic or inorganic substances or combination of substances, including disease-causing agents, which, after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through the food-chain, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in such organisms or their offspring.

This definition is similar to the definition of "toxic pollutant" included in section 502(13) of the CWA. The term, "toxic pollutant", is not used in today's proposal because, over the years, that term has become synonymous with the listed priority toxic pollutants included in section 307(a) of the CWA. EPA believes that Congress intended for the Agency to develop standards for a broader range of substances that might interfere with the use or disposal of sewage sludge, not just those priority toxic pollutants included in section 307(a).

Septage

In today's proposed rule, "septage" is included in the definition of "sewage sludge." Septage is defined to mean

"... the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system when the system is cleaned".

This means that the disposal of septage by any method that would be regulated under today's proposal (e.g., applied to land, placed in a monofill or surface disposal site) would be required to meet the applicable requirements in the same manner as any other sewage sludge. For example, where septage is land-applied, the person doing the application would need to identify the concentration of the pollutants in the septage regulated for land application (§ 503.13, Tables 1 and 2, for agricultural land; § 503.15, Table 3 for non-agricultural land) and calculate the allowable annual and cumulative loading rates using the methods described in Appendices B and C. They would also be subject to all applicable management practices for land application.

Users and disposers of septage (usually, septage haulers) would also be required to meet the same pathogen reduction requirements as other users and disposers of sludge. Current regulations for pathogen reduction (40 CFR Part 257) assumes that septage applied to land meets a Process to Significantly Reduce Pathogens if public access is controlled for 12 months and grazing by animals whose products are consumed by humans is prevented for one month. Today, for the reasons discussed in Subpart 7 of this part, EPA is proposing more stringent requirements for septage.

Today's proposal applies to the use and disposal of septage by one of the methods covered in this rule. It does not regulate the generation of septage (thus, owners of septic tanks are excluded from the definition of "treatment works"), or the siting, design, or operation of septic tanks. Nor does today's proposal regulate septage that is transported to treatment works. Such practices are regulated under the pretreatment program. The sludge generated by the receiving treatment plant would be subject to requirements proposed today.

The Agency is proposing to regulate septage in the same way as sewage sludge because of growing concern about the potential adverse effects of applying septage to land. In addition, the qualities of septage are similar to sludge (they are both a residual of wastewater treatment). Under today's proposed approach, the use and disposal of septage would be subject to the same requirements as the use and disposal of other sewage sludge. The Agency recognizes that this may require that

septage haulers have their septage processed prior to applying the septage on the land. EPA is unsure about the extent and magnitude of any disruptions that today's approach may cause. Therefore, EPA invites comment on the proposed regulatory approach for septage use and disposal.

Specifically, the public is invited to comment on whether or not septage is sufficiently similar to sewage sludge and of sufficient concern to warrant the same regulatory approach, particularly in terms of the proposed pathogen and vector attraction reduction requirements. Other possible regulatory options might include developing separate standards specifically for septage disposal that are tailored to the particular concerns presented by septage (e.g., pathogens and a narrower list of pollutants) and that might be simpler to apply. For example, rather than requiring the sampling of the septage and the calculation of loading rates, the rule could simply set a loading limit for septage. EPA solicits comments on the desirability or feasibility of such an alternative approach. The Agency welcomes any suggestions concerning other possible approaches that the Agency should consider in regulating septage use and disposal.

Sewage Sludge

Today's proposal defines sewage sludge as any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III marine sanitation device pumpings, and sewage sludge products.

Scum is the material that floats upward and must be skimmed off the top of the wastewater treatment tanks. Scum shares many characteristics with the other residues generated during wastewater treatment and is typically disposed of with sewage sludge. Therefore, it is included in the definition of sewage sludge.

Septage, portable toilet pumpings, and Type III marine sanitation device pumpings are included in the definition of sewage sludge because they share the characteristics of sewage sludge, are generated from domestic sewage, and present the same human health risks (e.g., pathogenic organisms) as sludge from municipal treatment works.

Sewage sludge products are mixtures of sewage sludge and other materials, such as bulking agents (e.g., wood chips), frequently added to sewage

sludge that is composted and then distributed and marketed. Such products are considered to be sewage sludge for the purposes of this proposal, no matter how small the percentage of sewage sludge in the product. The Agency is soliciting comment on this approach to determine if there are sewage sludge products that contain such a small percentage of sewage sludge that they no longer have the characteristics of sewage sludge.

Grit, screenings, or ash generated during the incineration of sewage sludge are not included in the definition of sewage sludge. Grit is the material, such as sand, small pebbles, and similar material, that settles out before primary treatment. Screenings are relatively large pieces of solid material that are caught on the screens at the headworks of the treatment plant. These waste streams are small, have vastly different properties from sewage sludge generated during wastewater treatment, are usually handled and disposed of separately, and are adequately regulated under solid waste programs.

Ash generated during the incineration of sewage sludge is not included in today's definition of sewage sludge. Incinerator ash, typically disposed of in landfills, like other ash material is sterile and dry. Incinerator ash does not have the same characteristics as other residues from wastewater treatment. As discussed above, incinerator ash will be regulated under RCRA (i.e., under Subtitle D if it is non-hazardous and under Subtitle C if it is hazardous). If, however, incinerator ash is mixed and disposed of with other sewage sludge (e.g., in land application), it will be regulated as sewage sludge.

Treatment Works

Treatment works include POTWs owned by State or local entities and federally owned facilities. All sewage sludge generated by these POTWs are covered by today's proposal, irrespective of the amount of industrial influent flowing into the treatment works.

Privately owned treatment works may include commercial processing facilities that treat domestic sewage. If privately owned treatment works treat domestic sewage exclusively, the sewage sludge generated is covered by today's proposal. However, if the privately owned treatment work treats domestic sewage along with industrial waste and wastewater, the sewage sludge is excluded from today's proposal. As discussed earlier, EPA is not prepared, at this time, to propose standards for the use or disposal of such sludge which, pending development of standards,

continues to be subject to the requirements in 40 CFR Part 257 or 40 CFR Parts 261 through 268.

For the purposes of this rule, septic systems are excluded from the definition of treatment works. Although septic systems treat domestic sewage, the Agency has no intention of permitting individual owners of septic systems. As discussed above, the ultimate use or disposal of the septage pumped from septic tanks will be covered by today's proposal.

Land Application (Subpart B)

Applicability (§ 503.10)

The numerical limits, management practices, and other requirements in Subpart B apply to the spreading of liquid, de-watered, dried, or composted sewage sludge on or just below the surface of agricultural and non-agricultural land. The requirements also apply to any one who distributes or who uses sewage sludge meeting the numerical limits in this subpart. Sewage sludge which is distributed and marketed for use as a potting medium, or lawns, ornamentals and gardens in compliance with Subpart C is not subject to the requirements of this subpart.

Treatment works with good quality sludge are encouraged to reuse the sewage sludge for its nutrient and soil conditioning properties. Subpart B requirements protect public health and the environment while encouraging the beneficial use of sewage sludge by providing options on the level of pathogen reduction that must be achieved and on the pollutant concentrations that may be present in sludge applied to the land.

Treatment works may use any one of three levels of pathogen reduction when sewage sludge is applied to either agricultural or non-agricultural land as long as the treatment work or applier complies with the applicable restrictions on public access to the land and on growing crops or raising animals on the sludge-amended soil. In addition, two sets of numerical limits are included in this part. The applicability of these limits depend on whether the sewage sludge is used in the production of crops intended, directly or indirectly, for human consumption or for animals raised for human consumption. In this way, the Agency believes that it is encouraging the reuse of sewage sludge while also protecting public health from the adverse effects of pathogenic infections and of chemical contamination of the food-chain.

One key difference between the requirements of Subpart B and Subpart

C (distribution and marketing) is the level of pathogen reduction to which a treatment work must process its sludge. Treatment works that distribute and market their sewage sludge to the general public must process their sludge to attain the Class A pathogen reduction standard—the highest level of pathogen reduction (i.e., reduce pathogens below levels of detection). Because sewage sludge that meets the Class A pathogen reduction standard does not pose a risk of an infectious dose, no access restrictions or restrictions on the growing or harvesting of food crops are imposed. Such restrictions would not be feasible for sewage sludge that is distributed and marketed to the general public. In contrast, the land application subpart allows treatment works the option of selecting alternative pathogen reduction standards, Classes B and C, as long as the landowner imposes public access and animal grazing controls and restricts the growing and harvesting of crops in accordance with the standards of the class of pathogen reduction selected.

Another difference between the requirements in Subparts B and C are the numerical limits for some of the organic pollutants and some metals when sewage sludge is applied to agricultural land and when sewage sludge is distributed and marketed. In both scenarios it is assumed that the sewage sludge is used in the production of crops intended for human consumption. The numerical limits for the application of sewage sludge to agricultural land are based on crops intended for direct human consumption or fed to animals intended for direct human consumption, whichever is the more stringent loading rate. For the organic pollutants, which tend to bioaccumulate through the food chain, the limiting numerical limit is based on crops fed to animals intended for human consumption. As explained in Subpart C, the distribution and marketing scenario is designed to protect a fruit and vegetable home garden, not a garden in which feed is raised for animals intended for human consumption. Therefore, the numerical limits for organic pollutants in distribution and marketing tend to be higher than those for agricultural land application.

The third major difference in the requirements between Subparts B and C is that for the requirements in Subpart B to apply, there must be an agreement between the treatment work and the distributor or applier of the sewage sludge to abide by the requirements in Subpart B, such as the access and use

restrictions. If there are no agreements and sewage sludge is applied to the land, treatment works must comply with the requirements for the distribution and marketing of sewage sludge in Subpart C.

In developing the requirements for the land application of sewage sludge, the Agency assumed that, except for the applicator, there would be little public contact with the sewage sludge itself or with the land receiving the sewage sludge. EPA also assumed that public access restrictions could be imposed on either agricultural or non-agricultural land for a period of time. The underlying premise in developing sewage sludge distribution and marketing requirements was that the sludge would be used in a home garden where there would be immediate and continuous human contact with the sewage sludge or with the land receiving it. Under such circumstances, the Agency could not restrict access.

As discussed earlier in the preamble, Part 503 does not apply to sewage sludge that is determined to be hazardous or to sewage sludge that contains Polychlorinated Biphenyls (PCBs) in concentrations equal to or greater than 50 parts per million (ppm). Such sludge is regulated under Subtitle C of RCRA and under the Toxic Substances Control Act (TSCA). Amendments to 40 CFR 761.20 [53 FR 24220, June 27, 1988] specifically exclude the land application of PCB-contaminated sewage sludge from the prohibition on using PCBs (regardless of the concentration), except in a totally enclosed manner, when the sewage sludge use is regulated under CWA and RCRA. This amendment codified the Agency's traditional practice of deferring to programs other than those of TSCA when regulating materials with less than 50 ppm of PCBs.

Specialized Definitions (§ 503.11)

In this section of the proposal, the Agency defines and clarifies terms that it uses throughout this subpart or in other definitions. Not all of the terms in § 503.11 will be discussed in the order in which they are listed in the rule.

Agricultural Land

The Agency estimates that approximately 25 percent of the sewage sludge that is generated by POTWs is applied to the land and that 77 percent of the sewage sludge applied to the land (approximately 926,000 million dry metric tons) is used to improve the condition and nutrient content of agricultural lands. The definition of agricultural land includes land on which crops or animals are raised for human

consumption (e.g., pastures for the grazing of animals). This beneficial reuse of sewage sludge has been and continues to be an Agency priority.

The numerical limits, management practices, and other requirements for agricultural land are applicable if sewage sludge is applied to lands on which the applicator grows his or her food or grows food for others. For example, the requirements for agricultural lands apply to pastures used for deer that are raised for subsequent sale or for deer hunts, whereas the requirements for non-agricultural land would apply to land where deer may graze as long as the hunting of the deer is prohibited.

Non-Agricultural Land

Non-agricultural land is defined as land on which neither food nor animal feed crops (including pastures) are grown. Example of non-agricultural lands include lands used for forests or turf farming, lands reclaimed for more productive purposes (i.e., lands devastated by fires, strip mining, etc.), and lands dedicated to sludge disposal.

The beneficial reuse of sewage sludge is not limited to the growing of food-chain crops. Sewage sludge applied to forest lands shortens wood production cycles and increases yields, especially on marginally-productive lands. Marginally-productive lands and lands suffering from poor soil stability and severe water and wind erosion can be stabilized and put to more productive uses through the application of sewage sludge and the establishment of a vegetative cover. For example, strip-mined areas and constructive sites have been reclaimed for use as wildlife sanctuaries and parks.

Lands dedicated to sludge disposal are usually owned or controlled by the treatment work. The objective of this practice is to employ the land as a treatment system by using soil to bind the metals and allow soil microorganisms, sunlight, and oxidation to destroy the organic matter in the sludge. Vegetative covers are established on these lands to preclude the runoff of sludge with soil and water. Although intensive management is required, this may still be less costly than other sewage sludge use or disposal practices in areas where land is available.

No food or feed crops may be grown or animals intended for human consumption raised on non-agricultural lands during the application of sewage sludge or for 5 years after the final application of sewage sludge. This should encourage treatment works to use the soil conditioning properties and nutrient contents of the sewage sludge

without concern about the effect of higher pollutant concentrations on the food-chain.

Annual Pollutant Loading Rate

The annual pollutant loading rate is the amount of an organic chemical (in kilograms) that can be applied to a hectare of land (2.5 acres) in a 365-consecutive-day period. The annual pollutant loading rates apply to organic pollutants and is one of two pollutant limits for sewage sludge used in agricultural land. The other pollutant limit is the cumulative pollutant loading rate for metals.

Table 1 in § 503.13 of the proposed rule lists the annual pollutant loading rates for 15 organic pollutants covered by today's proposal. The annual pollutant loading rate, derived from the exposure assessment model, ensures that the amount of a pollutant reaching a target organism does not exceed the human health or environmental criterion for that organism. For humans, the criterion is a carcinogenic potency value (Q_1^* value) because the 15 organic pollutants in Table 1 are all carcinogens. The Q_1^* values are listed in the Agency's Integrated Risk Information System (IRIS). For plants and animals, the criteria are toxicity values derived from the scientific literature and are listed in the "Technical Support Document: Land Application and Distribution and Marketing of Sewage Sludge" (Reference number 57).

As discussed in Part IV of the preamble, a key assumption in establishing an annual pollutant loading rate is that organic pollutants decompose according to first-order kinetics. In other words, the quantity of a pollutant decomposing or lost each year is directly proportional to the quantity present in the soil. This means that when a pollutant is applied at a steady rate for many years, the soil concentration approaches a plateau at which the rate of loss equals the rate of application. The annual pollutant loading rate is established to ensure that the long-term pollutant concentration in the soil is below a concentration that would exceed a human health criterion (i.e., equal to an incremental carcinogenic risk of 1×10^{-6}) if the plant absorbing the pollutant is eaten. For pathways involving the direct ingestion of a sludge-soil mixture by children or by grazing animals, the model builds in the half-life of a pollutant, particularly for persistent organic pollutants such as PCBs.

The Agency has developed a procedure and an equation to determine the amount of a sludge that may be

applied each year without exceeding the pollutants' annual loading rates. The procedure is spelled out in Appendix B of the proposed rule and is explained in connection with the discussion of the pollutant limits later in this subpart of the preamble.

Cumulative Pollutant Loading Rate

The cumulative pollutant loading rate is the maximum amount of a pollutant that can be applied to the land without exceeding a human health or environmental criterion when the pollutant reaches a target organism. An exposure assessment model is used to establish a cumulative pollutant loading rate for each of the 10 inorganic pollutants listed in Table 2 of § 503.13.

The exposure assessment model incorporates two key assumptions. The first is that the background metal concentration corresponds to an average background value for rural agricultural lands (Reference number 57). The second is that over a period of time, the metals adhere to the sludge-soil matrix and do not become more available to plants. The Agency also assumed that the amount of metal absorbed by a plant is a function of the total metal in the soil and that absorption by a plant is determined by the total metal in the soil.

The Agency recognizes that not all of the metal is in a form that can be absorbed by the plant. Only the leachable portion of the metal is available for absorption. Since there is insufficient data to determine the percentage of absorbable metal in a sludge-soil matrix, the Agency assumed that all of the metal is available to the plant. The Agency has initiated work to develop an index to correlate total metal in a sludge-soil matrix to the percentage absorbed by a plant. The percentage of the metal that is actually available for absorption by a plant could significantly affect the amount of metal that may be applied to the land without causing adverse human health or environmental effects, particularly if it is a small amount. The Agency is soliciting data on the dissolved and bound portions of metals in a sludge-soil matrix to assist it in determining the amount available to a plant.

The cumulative pollutant loading rate is the total amount of the pollutant, in kilograms per hectare (kg/ha), that can be added to the background concentration already in the soil without exceeding a human health or environmental criterion when the pollutant reaches the target organism. None of the 10 inorganic pollutants is a carcinogenic when ingested. Therefore, except for arsenic and lead, the Agency used the reference dose (RfD) from IRIS

as the human health criteria. Arsenic and lead are not listed in IRIS.

In the case of arsenic, EPA derived a daily dietary intake (DDI) from the maximum contaminant level (MCL). For lead, however, the Agency believed that the existing MCL (50 micrograms per liter) was too high a threshold on which to base a DDI. Therefore, as explained earlier in Part V of the preamble, the Agency derived a DDI on the basis of the amount of lead which could be in food without an adult white male exceeding a blood lead level of 10 micrograms per deciliter (10 µg/dl). Using this approach limits the cumulative pollutant loading rate of lead to 176 kg/ha. However, an environmental pathway (bird eating earthworms) limits the cumulative pollutant loading rate to 125 kg/ha, which, as the more stringent limit, was used by the Agency. The numerical limit of 125 kg/ha is significantly lower than the median regulatory range of 530 kilograms per hectare in the 32 States that have established cumulative loading rates for lead. In these States, the cumulative pollutant loading rates range from 200 to 2520 kilograms per hectare. Current EPA guidance suggests that lead should not be applied at a cumulative pollutant loading rate in excess of 500 to 2,000 kg/ha. The proposed limit of 125 kg/ha will result in significant reductions. As noted earlier in the preamble, the Agency is soliciting comment on the impact of this limit on the beneficial reuse of sewage sludge and on the potential intermedia transfer of lead risks.

The Agency has developed a procedure and an equation to determine the number of years that sewage sludge can be applied to the land without exceeding the cumulative pollutant loading rates. The procedure and equation are spelled out in Appendix C of the proposal and are explained in connection with the discussion of the numerical limits.

Land Application—General Requirements (§ 503.12)

Sewage sludge applied to the land must be applied in accordance with the requirements in Subpart B of the rule. All individuals who apply sewage sludge to the land (as opposed to individuals applying a "sewage sludge product" that is distributed or marketed, see Subpart C) must comply with the requirements.

Agreements

Before sewage sludge may be applied to the land by anyone other than the treatment work, the treatment work must enter into an agreement with the

distributor or applier of the sewage sludge. This agreement may be in the form of a performance agreement, a contract, or another similar instrument and must provide that the distributor or applier will meet the requirements in Subpart B of the rule. Thirty-eight States currently require agreements when sewage sludge is applied to the land.

The agreement between POTWs and distributors and appliers is a mechanism for ensuring the distributors and appliers are aware of the obligation, under section 405(e), to dispose of sewage sludge in accordance with the Section 405 technical standards. That obligation arises directly from the statute, not because of the existence of contractual relationship between the POTW and distributor or appliers. Moreover, the requirement to use and dispose of sewage sludge in accordance with the technical standards is directly enforceable by EPA under the statute. Section 405(e) makes it clear that it is unlawful to dispose of sludge for any use for which regulations have been established, except in accordance with the regulations.

The Agency is interested in specifying only the minimum number of elements needed in an agreement to assure compliance with the rule and will carefully consider suggestions to add or delete any elements to simplify the agreement. The Agency is particularly interested in the effect the agreements would have on small farmers and whether the agreements would discourage the use of sewage sludge in farming operations.

General provisions to be included in written agreements for both agricultural lands and non-agricultural lands are discussed first, followed by the particular provisions directed at sewage sludge that is applied to agricultural lands and to non-agricultural lands.

1. *General Provisions.* All agreements, whether with a sewage sludge distributor or applier, are to provide the following information:

- Name and address of person(s) receiving and applying the sewage sludge;
- Location(s) and legal description of the site(s) to which the sludge will be applied;
- Size(s) of the sites (or portion thereof) to which the sludge will be applied, in hectares or acres;
- The nitrogen concentration of the sewage sludge;
- Amount of sewage sludge to be applied to each site, in metric tons;
- Class of pathogen reduction used in the sewage sludge and the applicable use and access restrictions set forth in

40 CFR 503.52 for that class of pathogen reduction;

- Vector attraction reduction used in treating the sewage sludge;
- Period of time after receipt within which the sewage sludge must be applied;
- Application method to be used (i.e., injection below the surface of the soil, spraying, surface application, etc.) and whether or not the sludge is to be incorporated into the soil; and
- Storage method to be used in case of inclement weather and public health and environmental protective practices to be used until the sludge is applied.

This agreement also must contain prohibitions on the following:

- Application of sewage sludge at rates in excess of the nitrogen requirements of the vegetation and at rates that would cause the excess nitrogen to leach to the ground water;
- Application of sewage sludge to the land if such application will cause or contribute to the harm of an endangered or threatened species of plant, fish, or wildlife, will result in the destruction or adverse modification of the critical habitat of the endangered or threatened species, will restrict the flow of the base flood, or will reduce the temporary water storage capacity of the floodplain;
- Application of sewage sludge to frozen, snow-covered, or flooded land, unless it will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirement of the CWA; and
- Application of sewage sludge to any land that is 10 meters (30 feet) or less from a surface water.

2. Provisions For Agricultural Lands. In addition to the general provisions, these agreements must also include the following requirements whenever sewage sludge is applied to agricultural lands:

- Concentration of the pollutants listed in Tables 1 and 2 of 40 CFR 503.13;
- Prohibition on applying sewage sludge in amounts greater than 50 metric tons per hectare (on a dry weight basis);
- Amount of sewage sludge, in metric tons per hectare, that may be applied in a 365-consecutive-day-period without exceeding the annual pollutant loading rates in Table 1 of 40 CFR 503.13 (using procedures in Appendix B of 40 CFR Part 503 to determine the appropriate whole sludge application rate); and

Number of years that sewage sludge may be applied to the land without exceeding the pollutant loading rates in Table 2 of 40 CFR 503.13 (using procedures in Appendix C of 40 CFR Part 503 to determine the number of years that sewage sludge may be applied to the land).

Note that if the quality of the sludge changes, the amount of sludge that may be applied to the land also changes. If sludge quality improves, more could be applied to the land, provided that the increment does not exceed the nitrogen requirements of the crops. However, if the sludge quality becomes worse, less sludge may be applied to the land to avoid exceeding the numerical limits in Tables 1 and 2 in § 503.13.

3. Provision For Non-Agricultural Lands. In addition to the general provisions, agreements must also establish the following requirements whenever sewage sludge is applied to non-agricultural lands:

- Concentrations of the pollutants in Table 3 of 40 CFR 503.15;
- Prohibition on growing food or feed crops on the land during the period when sewage sludge is applied to that land and for 5 years after the final application of sewage sludge;
- Prohibition on grazing animals on the land during the period when sewage sludge is applied to that land and for 5 years after the final application of sewage sludge;
- Requirement that a vegetative cover be established on the land; and
- Prohibition on public access to the land to which sewage sludge meeting the Class A pathogen reduction requirements has been applied, until a vegetative cover has been established.

Each of the provisions in the agreement relates to a specific requirement in the rule and will be discussed in connection with the requirement. The agreement will also require submission of all the information a treatment work will need to comply with the monitoring, record keeping, and reporting requirements included in today's proposal.

The Agency recognizes that the portion of the agreement dealing with agricultural lands does not address the issue of an individual who receives sewage sludge from more than a single source. If individuals were to receive sewage sludge from more than one source, potentially more sewage sludge could be applied in a year to a parcel of land than would be authorized by the annual pollutant loading rates in Table 1. Of greater concern, however, is that over time, an individual receiving sewage sludge from multiple sources could exceed the cumulative pollutant loading rates for the metals listed in Table 2.

The Agency does not know if individuals frequently receive their sewage sludge from more than one source. Some States do keep records of individuals receiving sewage sludge, and these States may be able to identify

those individuals. EPA is interested in comments on whether the practice of receiving sewage sludge from more than one source is so prevalent that modifications should be made in the agreements to require that individuals identify all sources from which they are receiving or have received sewage sludge and notify the POTWs when they receive sludge from a new source.

Other General Requirements

Some of the general requirements in today's proposal are taken from the "Criteria For Classification of Solid Waste Disposal Facilities and Practices" (40 CFR Part 257). These requirements are to ensure that the land application of sewage sludge does not contribute to adverse human health or environmental effects. Specifically, today's rule proposes that sewage sludge applied to the land shall not cause or contribute to the harm of an endangered or threatened species and shall not result in the destruction or adverse modification of the critical habitat of such species. Other 40 CFR Part 257 requirements in today's proposal also include the following floodplain restrictions: (1) Sewage sludge shall not restrict the flow of a base flood (i.e., a flood that has a one percent or greater chance of recurring in any year or a flood of a magnitude equalled or exceeded once in 100 years); (2) it shall not reduce the temporary water storage capacity of the floodplain; and (3) washout of sewage sludge shall not pose a hazard to human health, wildlife, or land or water resources. Twenty-three States have similar floodplain restrictions.

As a supplement to these provisions, the Agency is proposing to prohibit the application of sewage sludge to frozen, snow-covered, or flooded land unless the applier demonstrates that the sewage sludge can be applied in a manner that will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirement of the CWA. There is every reason to assume that sewage sludge applied to frozen, snow-covered, or flooded lands would readily be transported off the site with the first melt or rainfall into a river, stream, or lake. Twenty-six States impose similar restrictions on the land application of sewage sludge. The Agency is interested in the experiences of those who have successfully applied sewage sludge to frozen, snow-covered, or flooded lands and the techniques that were used to prevent the sewage sludge from reaching a river, stream, or lake. Such information will assist the Agency in

developing guidance on the type of demonstrations that should be made.

Agricultural Land—National Pollutant Limits (§ 503.13)

Pollutants

EPA is proposing numerical limits for a total of 25 pollutants when sewage sludge is applied to the land. Table III-1 in the preamble lists the pollutants that were originally evaluated. Nitrogen and phosphorus were not included. The Agency believes that if sewage sludge is applied in accordance with the nutrient requirements of the plant, nitrogen and phosphorus would not be applied in sufficient quantities to adversely affect ground water or surface water. The Agency may consider modeling nitrogen and phosphorus, if comments on the proposal suggest that good agronomic practices generally have not been followed, particularly for non-agricultural lands.

Table III-2 of the preamble lists the pollutants that do not interfere with the land application of sewage sludge at the concentration shown in "Fate of Priority Pollutants in Publicly Owned Treatment Works" (the "40 City Study"). The Agency determined that, even under the

worst combination of circumstances, cyanide, fluoride, iron, and pentachlorophenol do not interfere with the land application of sewage sludge. As shown in Table 12 of § 503.72, the Agency would authorize removal credits for these pollutants when sewage sludge is applied to the land.

Table III-3 lists the pollutants that were originally evaluated, but for which numerical limits are not included in today's proposal due to insufficient data or because the Agency has not established a human health criterion for the pollutant. These pollutants may be considered in future rulemaking proceedings if sufficient information becomes available.

Tables 1 and 2 in § 503.13 of the proposed rule list the pollutants and numerical limits for sewage sludge application to agricultural lands. Table 3 in § 503.15 lists the pollutants and numerical limits for sewage sludge application to non-agricultural lands. The pollutants in Tables 1, 2, and 3 are among the pollutants that are eligible for removal credits when sewage sludge is applied to the land. Treatment works whose sludge meets the pollutant limits in these tables may issue removal credits to their industrial users if the

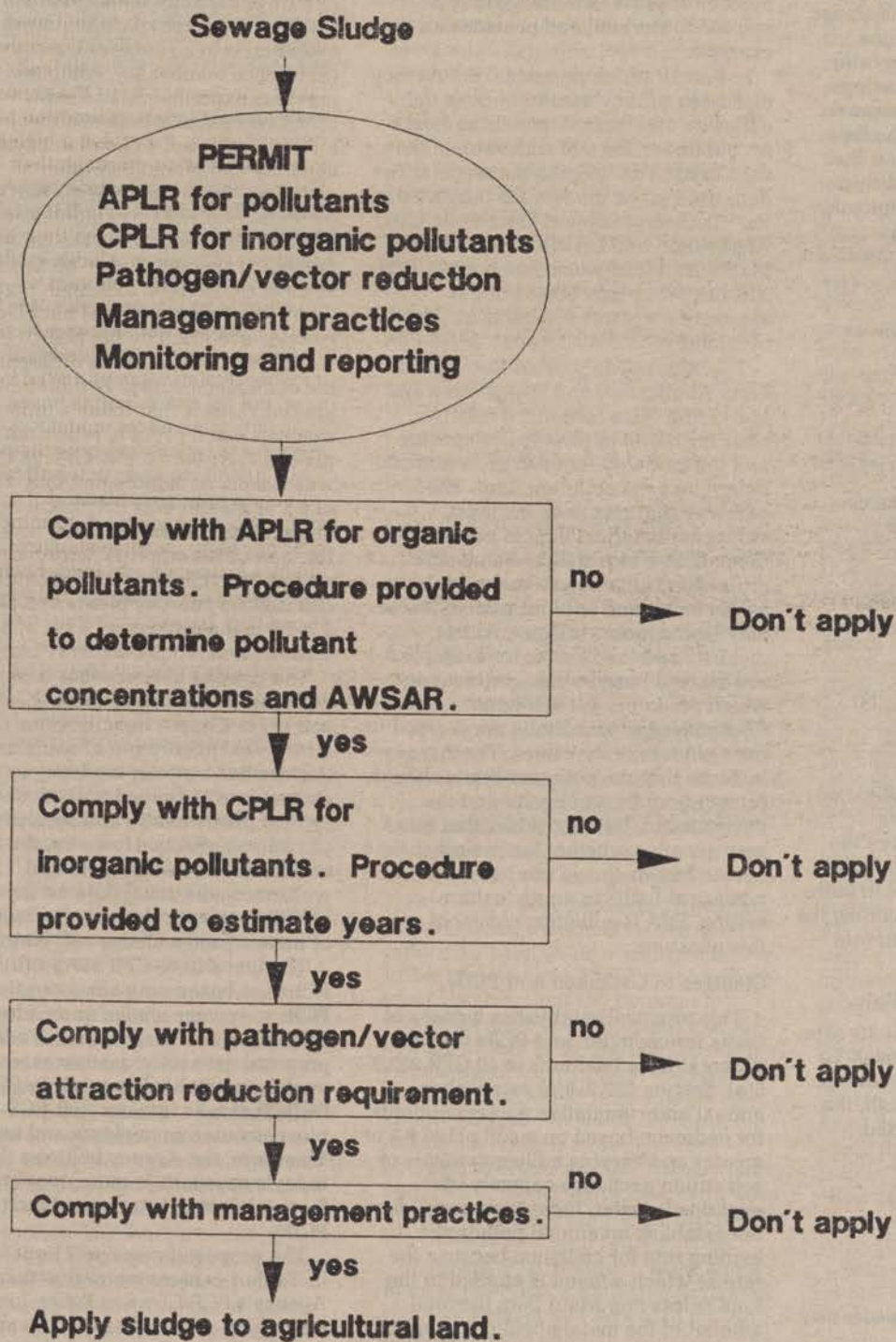
treatment work is eligible to do so under the provisions in 40 CFR Part 403.

As discussed in Part VIII of the preamble, the Agency used a different approach in establishing numerical limits for sewage sludge applied to agricultural lands from that used for non-agricultural lands. In establishing the numerical limits for agricultural lands, the Agency used the exposure assessment models to limit the potential for individuals to receive a high level of pollutant exposure through their diet. For non-agricultural lands, where there is little likelihood that pollutants will reach individuals through their diets, the Agency used current sludge quality (i.e., the 98th-percentile pollutant concentration shown in the "40 City Study"), unless the exposure assessment models for agricultural lands calculated a higher numerical limit. In the latter case, the pollutant limit is based on the exposure assessment model.

Figure IX-B.1 shows how the pollutant limits, pathogen and vector attraction reduction requirements, and management practices determine whether or not sewage sludge may be applied to agricultural land. Each of these factors is discussed below.

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Figure IX-B.1

LAND APPLICATION (AGRICULTURAL LAND)

Annual Pollutant Loading Rate

The annual pollutant loading rates for organic pollutants are listed in Table 1 of the proposal. The concentration of the organic pollutant in the sewage sludge controls the annual rate at which sludge may be applied to the land (i.e., the annual whole sludge application rate) because the annual pollutant loading rate remains constant with the annual whole sludge application rate. As the pollutant concentration increases, the annual whole sludge application rate decreases and vice versa. The annual whole sludge application rate is determined using the following equation:

$$APLR = C \times 0.001 \times AWSAR \quad (1)$$

Where:

APLR = Annual pollutant loading rate, in kilograms per hectare per year.

C = Pollutant concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

AWSAR = Annual whole sludge application rate, in metric tons per hectare, per year (dry weight basis).

0.001 = Converts milligrams per kilogram times metric tons per hectare to kilograms per hectare.

To determine the pollutant concentration in sewage sludge the equation is rearranged as follows:

$$C = \frac{APLR}{0.001 \times AWSAR} \quad (2)$$

The annual whole sludge application rate would be determined by the pollutant concentration that gives the lowest whole sludge application rate. Appendix B of the rule explains in more detail the procedures for determining the annual whole sludge application rate and provides an example.

Cumulative Pollutant Loading Rate

The cumulative pollutant loading rate is listed on Table 2 of the proposal. To determine the number of years sewage sludge may be applied to the land, the following equation would be used:

$$Y = \frac{CPLR}{APLR} \quad (3)$$

Where:

Y = Number of years that sewage sludge may be applied to the land.

CPLR = Cumulative pollutant loading rate, from Table 2 of the proposed rule.

APLR = Annual pollutant loading rate, derive from equation (1) of this subpart of the preamble.

The pollutant with the lowest number of years at a given annual pollutant

loading rate or annual whole sludge application rate determines the number of years for sludge application. Appendix C of the rule explains in detail the procedure for determining the number of years that sludge may be applied to the land and provides an example.

In Part IV of the preamble, the Agency discusses the key assumptions in the exposure assessment models and asks for public review and comment on the data used in developing the models. The data used in the models are tabulated in the "Technical Support Document: Land Application and Distribution and Marketing" (Reference number 57). Part XIII describes how copies of the exposure assessment models may be obtained.

The "Technical Support Document: Land Application and Distribution and Marketing" also contains a matrix showing the 14 pathways of exposure and the pathway for each pollutant that determines the pollutant limit. The pathway that results in the most stringent numerical limit is not always the pathway in which human health protection is the objective. In some cases, an animal or plant toxicity value may be the most stringent. Aldrin, dieldrin, and lead limits, for example, are derived based on the pathway in which predators eat soil biota. Chromium and zinc limits are derived from phytotoxicity values. The Agency believes that the pollutant limits should protect both human health and the environment, but recognizes that some may question whether factors other than human health should control the numerical limits in an agricultural setting. EPA is soliciting comment on this question.

Changes to Cadmium and PCBs

This proposal establishes numerical limits for cadmium and PCBs that are different from the limits in 40 CFR 257.3-5(a). Section 257.3-5(a) establishes annual and cumulative numerical limits for cadmium based on a soil pH of 6.5 or greater and varying milliequivalents of soil cation exchange capacity. As explained earlier, today's proposal does not establish an annual pollutant loading rate for cadmium because the rate at which a metal is applied to the land is less important than the total amount of the metal applied to a specific site.

The Agency is proposing a 18 kilogram per hectare cumulative pollutant loading rate for cadmium. The 40 CFR 257.3-5(a) rule established a cumulative pollutant loading rate of between 5 and 20 kilograms per hectare,

depending on the soil cation exchange capacity.

There are several reasons for the differences in the numbers. First, recent research shows that soil cation exchange capacity does not affect the plant's absorption of cadmium when cadmium is in a sludge-soil matrix (Reference number 26). Although previous experiments had shown a direct relationship between the milliequivalent of soil cation exchange capacity and plant absorption of cadmium, these experiments had used the more bioavailable soluble cadmium salts ($CdCl_2$) rather than the cadmium present in sewage sludge. Metals in sewage sludge tend to remain bound to the organic matrix so that not all of the metal is absorbed by the plant.

Another reason for the differences in the cadmium cumulative pollutant loading rates is that today's proposal assumes a soil pH of 6, rather than a soil pH of 6.5. At the time 40 CFR 257.3-5(a) was issued, data indicated that a soil pH of 6.5 or greater was necessary to minimize plant absorption of cadmium for food-chain crops. A more recent review of available data indicates that metal absorption by plants at a pH of 5.7-6.0 is the same as at a pH of 6.4 or greater (Reference numbers 71 and 72).

The Agency believes that basing cadmium's cumulative loading rate on a soil pH of 6 and a toxicity value using lettuce leaf absorption of cadmium (lettuce has a strong tendency to accumulate cadmium) will adequately protect public health and preclude phytotoxic effects. However, the Agency continues to evaluate data and welcomes additional data on the effect of different soil pH on plant absorption of metals from a sludge-soil matrix.

The limits in 40 CFR 257.3-5(b) for PCBs are based on a concentration of PCBs in sewage sludge or on a level of PCBs in animal feed or milk. Today's proposal uses the exposure assessment models to establish a numerical limit for PCBs that take into account PCB bioaccumulation in plants and animals. Therefore, the Agency believes that today's approach is more appropriate for establishing a numerical limit for PCBs.

The proposed numerical limit for PCBs in Table 1 is more restrictive than the Agency's PCB Cleanup Policy for residential areas where soil cleanup must not exceed 10 ppm with a 10-inch cap of soil of less than 1 ppm (40 CFR 761.125(c)(4)(v)). The Cleanup Policy limit for acceptable soil containment levels is based on soil ingestion, inhalation, and ground water contamination. The Cleanup Policy is

not based on food-chain pathways, a particularly important pathway for the land application of sewage sludge to agricultural lands. The critical application of sewage sludge to agricultural land is a grazing animal that is used for meat and animal products because of the bioaccumulation of PCBs through the food-chain.

Alternatives to National Numerical Limits

The Agency is proposing national numerical limits for the pollutants in Tables 1 and 2. There is no provision for case-by-case use of site-specific data to calculate alternative pollutant limits as there is for the disposal of sewage sludge in a monofill or for the incineration of sewage sludge. EPA adopted the approach of proposing only national numerical limits for the application of sewage sludge to agricultural lands because the Agency did not find that changes in site parameters made a significant difference in the numerical limits when it performed sensitivity analyses on the site parameters. As discussed earlier, EPA is limiting the use of site-specific data to parameters related to the physical conditions of the site (i.e., depth to ground water) when calculating case-by-case numerical limits. However, the parameters in the exposure assessment models could be varied.

The Agency recognizes that there could be significant differences in the numerical limits, depending on the type of crop grown. Since crops are generally rotated, the Agency did not believe that it was administratively feasible to establish alternative numerical limits for every possible combination of crops that might be grown on a particular field.

The approach that the Agency is proposing may impose numerical limits that are more stringent than necessary in some cases and less stringent, although fully protective, in others. Therefore, the Agency is particularly interested in public comment on the values used in the exposure assessment models for land application. EPA also solicits comment on whether or not the combination of assumptions used in the models and the requirements in today's proposal adequately protect public health and the environment without over-regulating and discouraging the beneficial use of sewage sludge to agricultural lands.

As discussed in Part XI of the preamble, the Agency estimates that 266 POTWs that apply sewage sludge to agricultural lands are likely to exceed the numerical limits in Tables 1 and 2.

Agricultural Land—Management Practices (§ 503.14) 50-Metric Ton Limitation

The proposed rule limits the application of sewage sludge to agricultural lands to 50 metric tons per hectare (20.24 metric tons per acre) or less, on a dry weight basis. This is equivalent to 250 metric tons of wet sludge per hectare (approximately 100 metric tons of sludge per acre), assuming a 20 percent solids content. There are two reasons for the 50-metric ton limitation. First the exposure assessment model cannot calculate pollutant limits above 50 metric tons per hectare. At 50 metric tons per hectare, the sludge starts to dominate the sludge-soil mass, and the model loses its predictive capability. Second, and equally important, the Agency believes that land application becomes a disposal, rather than a reuse practice, at rates over 50 dry metric tons per hectare.

Crop and Access Limitations

Section 503.14(b) requires that owners or operators of agricultural land to which sewage sludge has been applied meet the crop and access restrictions in § 503.52. These restrictions are to protect crops, animals, and people from pathogenic organisms.

EPA is proposing that sewage sludge applied to the land meet one of the three classes of pathogen reduction which are discussed in connection with Subpart F of the preamble. The class of pathogen reduction selected determines the rigor of the access and use restrictions.

For the Class A pathogen reduction requirements, treatment works must reduce all pathogenic organisms below levels of detection. These requirements must also be met if the treatment processes raise the temperature of the sewage sludge to 53 degrees Celsius and reduce the density of fecal coliforms and fecal streptococci to 100 per gram of volatile suspended solids. Because the risk of infection and disease from pathogenic organisms has thereby been eliminated, no access or use restrictions are placed on sewage sludge that meets the Class A pathogen requirements.

If, however, a treatment work elects to meet the Class B pathogen reduction requirements, public access to the land and the growth and harvesting of crops are restricted to eliminate any remaining potential for pathogenic infections. Class B pathogen reduction requirements specify the reductions in the densities of pathogenic bacteria and animal viruses per unit mass of volatile suspended solids. Time and natural

processes are used to kill the protozoa and helminth ova.

Section 503.52(b)(4) prohibits public access to the agricultural land where the sewage sludge has been applied for a period of 12 consecutive months after the application of sewage sludge meeting the Class B pathogen reduction requirements. This does not preclude owners, operators, or employees from working in the fields, but it assumes that they will take the necessary precautions of washing before handling food and preventing the spread of any organisms from their clothing. Access restrictions are being imposed because the Agency could not assume that the general public would be aware of the need for such precautions. EPA is not specifying the way in which land owners or operators are to restrict public access, although local authorities may wish to do so. It is the Agency's belief that fencing or periodic signs should be sufficient in populated areas.

The use restrictions on sewage sludge meeting the Class B pathogen reduction requirements in § 503.52(b)(2) specify that no food crops with harvested parts above the ground and touching the sludge or the sludge-soil mixture may be grown for a period of 18 consecutive months after the application of sewage sludge. The restriction does not apply to crops, such as tomatoes, with harvested parts that do not come into contact with the sludge. Research indicates that 18 months should be sufficient for the attenuation of the pathogenic organisms.

Food crops with harvested parts below the ground, however, may not be grown for a period of 5 years, unless a demonstration can be made that there are no viable helminth ova in the soil. If such a demonstration is made, food crops with harvested portions below the ground may be grown 18 months after the application of the sewage sludge. EPA is proposing this restriction because some helminth ova have been shown to survive for as long as 5 years. Even though a demonstration can be made that there are no surviving helminth ova, 18 months is needed to allow time for natural processes to inactivate or destroy helminth ova and other pathogenic organisms.

Today's rule also proposes that animal feed crops not be harvested for a 30-day period after the application of the sewage sludge. During this time, wind and rain are likely to reduce the amount of sewage sludge that adheres to the feed crops.

In addition to the restrictions on food and animal feed crops, EPA is proposing that no animals be allowed to graze on agricultural lands for 30 days after the

applications of sewage sludge. The 30-day period allows time for the climatic conditions to integrate the sludge into the soil layer to prevent animals from physically removing the sludge from the fields or ingesting bacteria such as salmonella.

If the treatment work chooses to meet the Class C pathogen reduction requirements, more rigorous access, harvesting, and grazing restrictions are imposed. This is necessary because the reductions in the density of pathogenic bacteria and animal viruses are less stringent than those in the Class A or Class B requirements. Class C requirements specify that, except for those actually applying the sludge, access is prohibited for 12 months where sewage sludge meeting the Class C requirements has been applied.

The restrictions on growing food crops where sludge meeting Class C requirements is applied are the same as those for sludge meeting Class B requirements. However, the Agency is proposing to prohibit the harvesting of animal feed crops and the grazing of animals for 60 days after the application of sewage sludge.

Agronomic Rates

Section 503.14(c) includes a provision that sewage sludge may not be applied at rates in excess of the nitrogen requirement of the crop and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water. The objective of this requirement is to optimize the removal of the nitrogen from the sewage sludge for optimal plant growth and to minimize nitrate contamination of ground water.

Sewage sludge contains three to five percent nitrogen. Nitrogen may be in the form of nitrogen, organic nitrogen, nitrogen as ammonia, and nitrogen nitrate. Organic nitrogen is the predominate form of nitrogen in sewage sludge and decomposes into ammonia and nitrate. Ammonia is the form of nitrogen absorbed by the plant. Ammonia not absorbed by the plant may volatilize or has the potential to

oxidize and form nitrate, a water-soluble anion that moves readily downward into the soil profile. High levels of nitrate in drinking water supplies may result in health problems for both infants and livestock. The drinking water standard is 10 micrograms of nitrogen as nitrate per liter of water.

The nitrogen requirements of different plants can range from 50 to over 350 kilograms per hectare (45-312 pounds per acre). The nitrogen content of the sewage sludge, cropping patterns, plant-available nitrogen in the soil, supplemental fertilizers used, climatic conditions, and method of sewage sludge application also affect the amount of nitrogen that plants can effectively absorb from the sewage sludge.

Rather than establish a national numerical limit for nitrogen, the Agency is establishing a requirement that the appropriate limit be established based on site-specific land management practices. Guidance is available to assist in establishing the appropriate application rate from the "Process Design Manual—Land Application of Municipal Sludge" (Reference number 73) and from County Extension Service agents, State Extension soil fertility specialists, and State and local Soil Conservation Service agents.

10-Meter Set-Back

Section 503.14(e) prohibits the application of sewage sludge to land that is closer than 10 meters (30 feet) from a surface water source. EPA is proposing 10-meter set-back to reduce the potential for sewage sludge to reach the surface water in case of precipitation. In addition, the numerical limits established with the exposure assessment models are based on a 10-meter set-back from surface waters. Generally, however, States require a 100 to 200 foot set-back from surface water.

Wellhead Protection Areas

Other than the 10-meter set-back from a surface water source, EPA has not

proposed locational criteria for the land application of sewage sludge. However, the Agency recommends that, in applying sewage sludge to the land, consideration be given to any Wellhead Protection Areas established pursuant to section 1428 of the Safe Drinking Water Act and any management strategies established by a State under such programs. The Wellhead Protection Program is designed to protect ground water that supplies wells and wellfields contributing water to public water supply systems. States may have established or may wish to establish other locational criteria consistent with their own Wellhead Protection Programs.

Other Management Practices

The Agency has not included provisions that require sewage sludge incorporation into the soil, soil testing for organic pollutants or metals, or achievement of a particular soil pH. Nor has the Agency included provision to limit the slope of the fields to which sewage sludge is applied. While these are sound management practices, EPA believes that its role is to establish standards which will ensure adequate protection of public health and the environment without specifying how individuals are to meet the standards. Frequently, States have specific requirements. Nine States require the incorporation of the sludge into the soil for new crops, 27 States have a soil pH requirement, 18 States require or conditionally require soil analysis, and 26 States have slope limits. Under the provision of today's proposal, States may continue to impose such requirements.

Non-Agricultural Land—Pollutant Limits (§ 503.15)

Figure IX-B.2 shows how the pollutant limits, pathogen and vector attraction reduction requirements, and management practices which determine whether sewage sludge may be applied to non-agricultural land.

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Figure IX-B.2

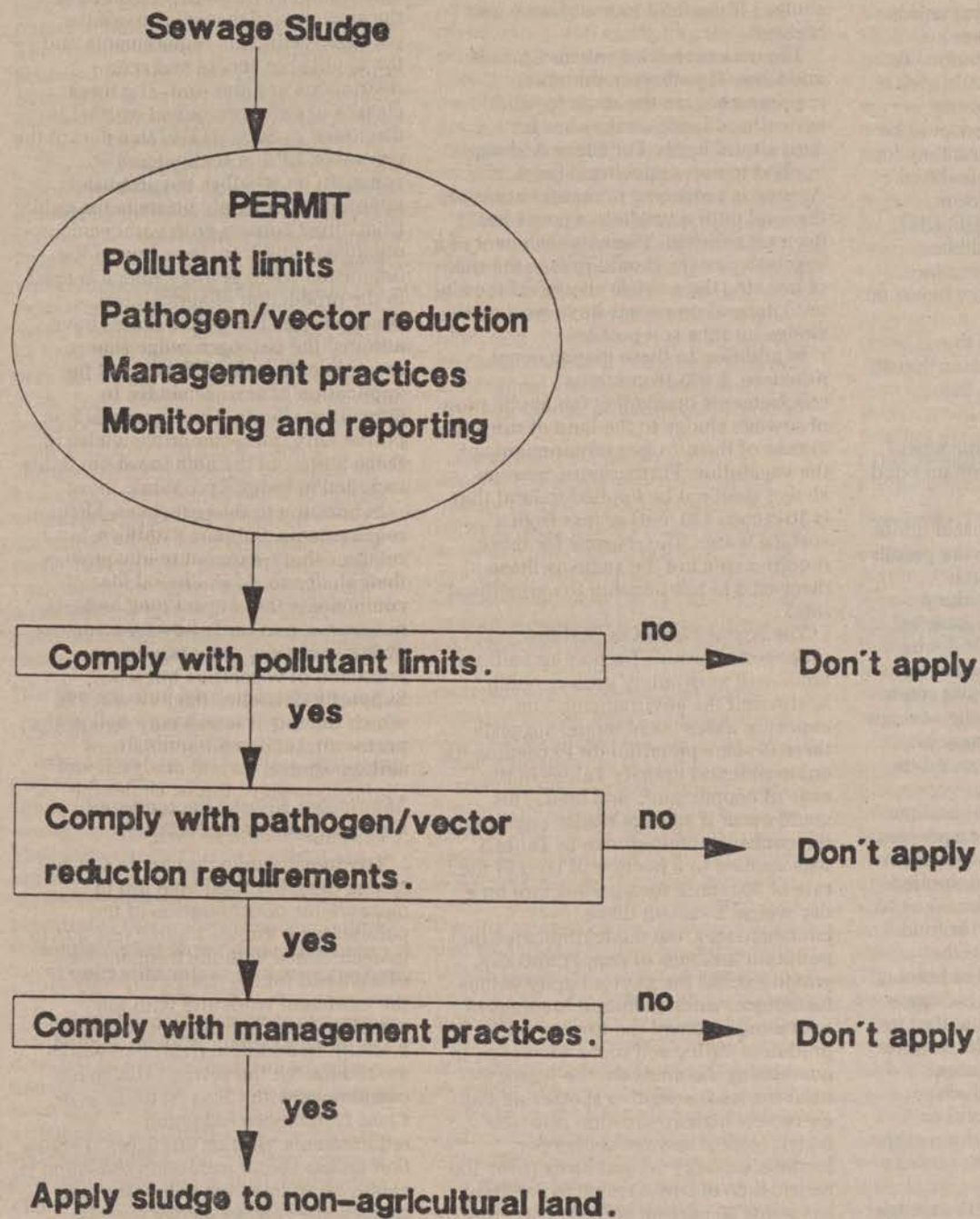
LAND APPLICATION (NON-AGRICULTURE)

Table 3 of the proposed rule lists the maximum concentration of a pollutant permitted in sewage sludge applied to non-agricultural lands. As discussed earlier, these concentrations are derived from current sludge quantity (i.e. the 98th-percentile concentrations shown in the "40 City Study" data base) unless the exposure assessment model calculated a higher concentration. To determine which method would give a higher concentration, the Agency assumed that sewage sludge would be applied at the rate of 50 metric tons for 10 years. Since the model calculated higher pollutant limits for aldrin, chlordane, dieldrin, DDD, DDE, DDT, heptachlor, hexachlorobutadiene, lindane, PCBs, and toxaphene, the values for these pollutants are based on the model.

As discussed in Part XI of the preamble, the Agency estimates that 12 POTWs are likely to exceed the numerical limits in Table 3.

Non-Agricultural Land—Management Practices (§ 503.16) Prohibition on Food or Feed Crops

EPA established the numerical limits for non-agricultural lands on the premise that pollutants would not reach individuals through the food-chain. Therefore, § 503.16 prohibits growing food or grazing animals on land where sewage sludge meeting the numerical limits in Table 3 is applied. Five years after the final application of the sewage sludge, food and feed crops may be grown and animals may be grazed on the sludge-amended soils.

The Agency recognizes that neither EPA nor owners or lessees can prevent inadvertent grazing by wild animals on lands where sewage sludge is applied. However, precautions must be taken to preclude hunting or foraging for food. Such precautions may include the periodic posting of signs and or fencing. Many non-agricultural lands receive a one-time sewage sludge application to assist in the reclamation of the land for more productive purposes. These purposes may eventually include covering the land to agricultural or residential uses where food-chain crops are grown or farm animals are raised. Therefore, EPA is limiting the prohibition to a period when the sludge is being applied and for 5 years after the final application of sewage sludge. Five years should provide sufficient time for the soluble portion of the metals to leach from the root zones of any crops grown or to become sorbed to the soil matrix.

EPA is interested in comments on difficulties that the Agency may incur in implementing these provisions and the

experiences of State and local agencies with similar restrictions.

Other Management Practices

Vegetative covers are required on non-agricultural lands receiving sewage sludge to retard the migration of the sludge off the land into surface water bodies.

The access restrictions for Class B and Class C pathogen reduction requirements are the same for non-agricultural lands as they are for agricultural lands. For Class A sludge applied to non-agricultural lands, the Agency is proposing to restrict access to the land until a vegetative cover has been established. The establishment of a vegetative cover should reduce the risk of tracking the sewage sludge off the site until natural processes have worked the sludge into the soil profile.

In addition to these management practices, § 503.16 contains requirements precluding the application of sewage sludge to the land at rates in excess of the nitrogen requirements of the vegetation. Furthermore, sewage sludge shall not be applied to land that is 10 meters (30 feet) or less from a surface water. The reasons for these requirements are the same as those discussed in relationship to agricultural land.

The Agency believes that the proposed approach for non-agricultural lands will adequately protect public health and the environment. The exposure assessment model suggests there is some potential for exceeding the environmental toxicity values in the case of copper, zinc, and lead. This could occur if sewage sludge containing the concentrations shown in Table 3 was applied to a hectare of land at the rate of 50 metric tons per hectare on a dry weight basis. In these circumstances, the model indicates that pollutant loadings of copper and zinc would exceed the phytotoxicity values for lettuce, while pollutant loadings of lead would exceed the toxicity value for predators eating soil biota. However, in conducting the analysis, the Agency used the most sensitive species and an extremely high application rate—50 metric tons of sewage sludge per hectare, on a dry weight basis (over 100 metric tons of sewage sludge per acre, assuming 20 percent solids). Therefore, the Agency believes that the actual potential for significant or widespread adverse environmental effects is very low. EPA has requested data on the appropriate environmental criteria that should be used in evaluating the effect of applying sewage sludge to non-agricultural lands and is collecting data on concentrations of pollutants currently

in sewage sludge through the National Sewage Sludge Survey.

Pathogen and Vector Attraction Reduction (§ 503.17)

Sewage sludge may be applied to agricultural or non-agricultural land if the sewage sludge meets any of the pathogen reduction requirements and the applicable access and crop restrictions are imposed. The three classes of pathogen reduction are discussed in Subpart F of this part of the preamble. EPA is seeking public comment on whether the proposed approach adequately protects the public from direct contact with pathogenic organisms and from ingestion of the organisms when sewage sludge is used in the production of agricultural commodities. Thirty-five States have adopted the pathogen reduction requirements in 40 CFR Part 257 for application of sewage sludge to agricultural lands. The Agency is particularly interested in the views of these States on the additional flexibility included in today's proposal.

In addition to the pathogen reduction requirements, Subpart F of the rule requires that treatment works process their sludge to rid sewage sludge of components that attract flies, rodents, mosquitos, and birds—disease vectors. This is generally done through the reduction of vegetative bacteria. Subpart F describes the five ways in which treatment works may reduce the vector attraction characteristic of sewage sludge.

Monitoring, Record Keeping, and Reports §§ 503.81 and 503.82

Treatment works that apply sewage sludge to agricultural land are to measure the concentration of the pollutants on Tables 1 and 2 in § 503.13 in accordance with the frequencies established for the design capacity of the treatment work and with the sampling and analysis procedures in § 503.81. In addition, treatment works are to monitor the sewage sludge for compliance with Class A, Class B, or Class C pathogen reduction requirements. Section 503.82(a)(1) states that unless vector attraction reduction is achieved by injection below the soil surface, the sewage sludge must be monitored for volatile solids, specific oxygen uptake rate (SOUR), pH, and moisture content.

The agreements between the treatment works and the distributor or land applier contain all the records specified in § 503.82(b)(1) that treatment works must keep and all of the information necessary for treatment

works to comply with the reporting requirements in § 503.82(c)(1).

EPA is proposing that treatment works applying sewage sludge to agricultural lands keep the records for the life of the treatment work to ensure that the cumulative pollutant loading rate is not exceeded for a particular parcel of land receiving sewage sludge. The Agency solicits comment on this proposal and on other appropriate time periods or ways the objective could be met without requiring records to be kept for the life of the treatment work.

The monitoring, record keeping, and reports required in §§ 503.81 and 503.82 applicable to non-agricultural lands are similar to those required for agricultural lands. One difference is that treatment works do not have to keep track of annual and cumulative pollutant loading rates. Therefore, the reports need only be kept for 5 years. Five years is not only the record retention requirements in the State sludge management program regulation, but it is also the period of time after the final application of sewage sludge that crops intended for human consumption may not be grown or animals intended for human consumption may not be raised on the land. As is true for agricultural lands, the agreement between the treatment work and the distributor or applier contains all the information necessary to comply with §§ 503.81 and 503.82.

Distribution And Marketing (Subpart C)

Applicability (§ 503.20)

Approximately 106 facilities distribute and market 705,500 dry metric tons of sewage sludge (nine percent of the sewage sludge generated). Although 22 States have regulations or guidelines applicable to the distribution and marketing of sewage sludge, today's proposal is the first Federal regulation that establishes specific requirements for sewage sludge that is distributed and marketed.

Distribution and marketing of sewage sludge as a means of managing the disposal of sewage sludge is a highly beneficial practice and one the Agency encourages. Like land application, distribution and marketing employs the soil conditioning and fertilizer value of sewage sludge. In a typical distribution and marketing (D&M) program, sludge products are sold or distributed without charge to commercial growers, landscaping firms, parks, highway departments, cemeteries, and golf courses, as well as to the public for use on lawns, ornamentals, and gardens and as a potting medium. The distribution may be carried out by the treatment work or by an independent distributor.

The distributor may collect the sewage sludge from several treatment works and process the sewage before bagging or distributing the final product in bulk form. Although the municipality may receive some return from the sale of sludge products, these revenues do not usually cover the costs of treating, distributing, and marketing the sludge product. Decisions on the market area take into account such factors as the cost of shipping, the demand for the product, and the elasticity of the demand. Most facilities distributing and marketing sewage sludge products find that the demand far exceeds the supply.

Sludge quality is the most important factor to consider in the distribution and marketing of sewage sludge. The sludge must have a low concentration of metals and must meet the Class A pathogen reduction requirements in Subpart F to be distributed and marketed. This may affect some small communities that air-dry their sludge and informally give it away.

Communities that do not have adequate procedures to control the quality of their product may have to improve their quality control procedures or use an alternative practice. Sludge quality control is crucial in protecting human health and the environment and in maintaining public acceptance of the D&M method of managing sewage sludge. The numerical limits, management practices, and other requirements in today's proposal are designed to ensure that only the best quality sludges are distributed and marketed, that adequate quality control procedures are implemented, and that instructions for the appropriate uses and associated quantities of the product are given clearly. These requirements are designed to protect human health and the environment when sewage sludge is distributed and marketed and to fully inform the public on the proper use of the product. The Agency is interested in suggestions, particularly from facilities that are already involved in the distribution and marketing of sewage sludge or are considering the practice, on ways to encourage the distribution and marketing of sewage sludge.

Subpart C applies to sewage sludge that is distributed and marketed, to treatment works that distribute and market their sewage sludge, to distributors of sewage sludge or sewage sludge products, and to those applying the sewage sludge or sewage sludge products. Treatment works will need to decide whether the requirements for the land application of sewage sludge to either agricultural lands or non-agricultural lands in Subpart B are

applicable or whether the requirements in this subpart apply.

In part, this decision will depend on whether or not a treatment work can enter into an agreement with a sludge user (e.g., municipal agency) that can restrict access to areas where the sludge has been applied (as required in Subpart B). If this is the case, Subpart B may provide the treatment work with more flexibility. If neither an agreement nor access restrictions are possible, however, the Subpart C requirements must be met.

The Agency developed the requirements for the distribution and marketing of sewage sludge on the premise that the sludge would be used in home gardens. Based on that premise, the Agency made the following assumptions: (1) The treatment work could not control product use; (2) the Agency could not impose access or use restrictions; (3) the Agency could require that instructions on the proper use of the product accompany the product; and (4) users would comply with the use instructions.

Specialized Definitions (§ 503.21)

A key concept in this subpart is the distinction between sewage sludge and a sewage sludge product. The sewage sludge product, which is the material that is distributed and marketed, may be sewage sludge or a mixture of sewage sludge and other materials (e.g., woodchips or other bulking agents).

The numerical limits in Table 4 of the proposed rule are in the form of pollutant concentrations that correspond to a specific annual whole sludge application rate. An annual whole sludge application rate is the maximum amount of sewage sludge or sewage sludge product that can be applied to a unit of land in a year without exceeding the pollutant concentrations in Table 4. The addition of bulking agents to sewage sludge by distributors may lower pollutant concentrations in the sewage sludge product, thus allowing a higher application rate for the product than for the unaltered sludge.

Pollutant concentrations in sewage sludge may vary from one treatment work to another. Thus, before distributing the product, distributors must determine the mixture's final pollutant concentrations to calculate the annual product application rate for the product's label or accompanying informational sheet.

Distribution and Marketing—General Requirements (§ 503.22) Agreements

Only sewage sludge or sewage sludge products that meet the requirements in

Subpart C may be distributed and marketed. To ensure product quality control, the Agency is requiring treatment works that do not distribute the sewage sludge product to enter into agreements (e.g., a performance agreement, contract, or other legally binding compliance mechanism) with their distributors. As with sludge that is applied to agricultural or non-agricultural land, sludge that is distributed and marketed must be used in compliance with the standards established in Part C of the proposed rule, which are independently enforceable and do not depend on the existence of the contract relationship between the POTW and any distributor. Rather, the performance agreement spells out the distributor's obligation under these regulations. The performance agreement is to contain the following:

- Name and address of the distributor;
- Concentrations of the pollutants listed in Table 4 of 40 CFR 503.23 that are in the sewage sludge disbursed to the distributor;
- Appropriate annual whole sludge application rate of the sewage sludge disbursed by the treatment work;
- Appropriate annual product application rate of the product to be distributed and marketed;
- Documentation that the sewage sludge disbursed to the distributor is in compliance with the Class A pathogen

reduction requirements in 40 CFR 503.52(a) and that it has been monitored for volatile solids, specific oxygen uptake rate (SOUR), pH, or moisture content in compliance with the vector reduction requirements in 40 CFR 503.53; and

- Facsimile of the label or information sheet containing the information required, in 40 CFR 503.24(c), that is to accompany the product.

The Agency is reviewing examples of agreements that treatment works have with their distributors. Suggestions are particularly welcome on ways to simplify the performance agreement while still assuring compliance with the requirements in Subpart C.

The requirements for the distribution and marketing of sewage sludge include a provision that recommended application rates not exceed the nitrogen requirements for the use of the product for the reasons explained in Subpart B. This will require those developing the labels and information sheets to carefully consider the uses of their product and the areas of the country where the product is to be distributed. Nitrogen requirements differ depending on the crop and climatic conditions.

Distribution And Marketing—National Pollutant Limits (§503.23)

Pollutants

The Agency is proposing numeric limits for a total of 22 pollutants in

sewage sludge that is distributed and marketed. Table III-1 lists the pollutants that were originally evaluated and Table III-2 lists the pollutants that do not interfere with the distribution and marketing of sewage sludge at the concentrations shown in the "40 City Study." The Agency determined that even under worst combination of conditions, cyanide, dimethyl nitrosamine, molybdenum, trichlorethylene, and pentachlorophenol do not interfere with sewage sludge products that are distributed and marketed. As shown in Table 12 of § 503.72, the Agency would authorize removal credits for these pollutants.

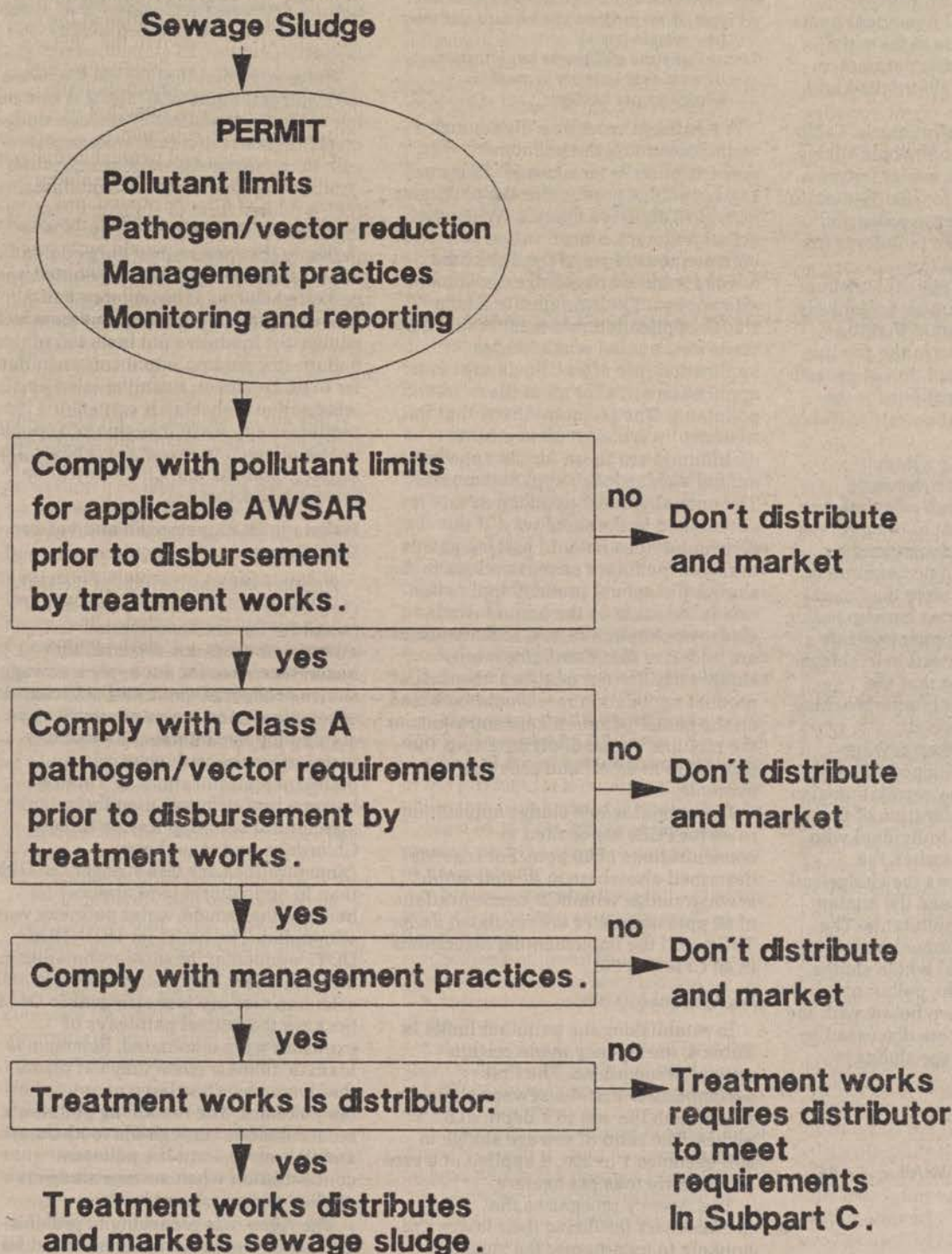
Table III-3 lists the pollutants that were originally evaluated, but for which numerical limits are not included in today's proposal due to insufficient data or because human health criteria have not been established. If sufficient information becomes available, these pollutants may be considered in a future rulemaking proceeding.

Figure IX-C.1 illustrates how the pollutant limits, pathogen and vector attraction reduction requirements, and management practices determine whether or not sewage sludge may be distributed and marketed. The requirements are discussed below.

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Figure IX-C. 1

DISTRIBUTION AND MARKETING



National Limits

Table 4 of the rule lists the pollutants and the concentrations of the pollutants that may be in sewage sludge that is distributed and marketed. EPA is proposing only national numerical limits because it is not feasible to take into consideration site-specific parameters when sewage sludge is distributed and marketed.

The pollutant concentrations in Table 4 correspond to an annual whole sludge application rate. Before sludge leaves a treatment work, either for distribution to the public or for transfer to a distributor, the concentrations of the pollutants in Table 4 may not exceed the concentration for the applicable annual whole sludge application rate. Similarly, the distributor must ensure that the pollutant concentrations in the product distributed and marketed do not exceed the applicable concentrations for the annual product application rate in Table 4.

EPA established the pollutant concentrations using the exposure assessment model, which calculated an annual organic pollutant loading rate or a cumulative metal pollutant loading rate. The Agency developed equations and procedures to correlate the annual pollutant loading rate to a corresponding annual whole sludge application rate and a pollutant concentration in sludge. The correlation ensures that the concentration of the pollutants reaching the plant would not exceed phytotoxicity values when sewage sludge or the sewage sludge product is applied to the land. The correlation also ensures that the concentration of the pollutants reaching an individual who ingests a plant that absorbed the pollutants or who ingests the sludge-soil mixture would not exceed the human health criteria for the pollutants. The relationship between annual pollutant loading rate, the annual whole sludge application rate, and the pollutant concentration are shown below with the same equations that were discussed in the application of sewage sludge to agricultural lands:

$$APLR = C \times 0.001 \times AWSAR \quad (1)$$

$$C = \frac{APLR}{0.001 \times AWSAR} \quad (2)$$

Where:

APLR = Annual pollutant loading rate, in kilograms per hectare.

C = Pollutant concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

AWSAR = Annual whole sludge application rate, in metric tons per hectare, per year (dry weight basis).

0.001 = Converts milligrams per kilogram times metric tons per hectare to kilograms per hectare.

A treatment work or a distributor would determine the pollutant concentration in the sewage sludge or sewage sludge product for the pollutants listed in Table 4 of the rule. When the actual pollutant concentration is between the values of the Table, the lower annual whole sludge application rate applies. The appropriate whole sludge application rate is determined by the lowest annual whole sludge application rate after calculating application rates for all of the pollutants. The pollutant limits that the treatment work must meet prior to distribution are those for the appropriate annual whole sludge application rate. The annual product application rate is determined in the same way. If the distributor does not add bulking agents to reduce pollutant concentrations in the sludge, the annual product application rate is the same as the annual whole sludge application rate. If bulking agents are added or the distributor mixes sludges of different qualities, the annual product application rate would be based on the actual pollutant concentrations in the mixture. Appendix B describes the procedure in detail and provides an example.

The annual whole sludge application rates for PCBs are limited to concentrations of 49 ppm. For reasons described elsewhere in this preamble, sewage sludge with PCB concentrations of 50 ppm or greater are regulated under TSCA and the implementing regulations in 40 CFR Part 761.

Sludge-Soil Mixture

In establishing the pollutant limits in Table 4, the Agency made certain critical assumptions. The first assumption is that the sewage sludge is mixed with the soil to a depth of 6 inches. The ratio of sewage sludge to soil becomes 1 to 200, if applied at a rate of 10 metric tons per hectare.

The Agency recognizes that homeowners fertilizing their lawns are unlikely to incorporate the sludge product into the soil unless establishing new lawns. Nevertheless, homeowners may water the lawn after applying the sludge product causing the pollutants to migrate into the soil profile in a short period of time. The Agency has no data

on the sludge-to-soil ratio when sludge migrates into the soil profile through watering or natural processes and is requesting data and views on the premise that either the homeowner or natural processes will ensure that sludge and soil are mixed to a depth of 6 inches.

The assumption that the sludge mixes with soil to a depth of 6 inches is critical in evaluating the effect of sewage sludge on children who inadvertently ingest soil. Because the Agency assumes that children ingest a sludge-soil mixture (i.e., a diluted form of sludge), direct ingestion of sludge is no longer the pathway that determines the pollutant concentration for lead in distributed and marketed sludge. If the Agency had assumed that children ingested pure sludge, the model would have calculated a more stringent pollutant concentration for lead. However, since the label and informational sheets accompanying the product are to warn that children should not be allowed to ingest the product, the Agency believes that children will be adequately protected.

Pathways Of Exposure Eliminated For D&M Scenario

Another key assumption in the D&M scenario is that animals would not be raised for human consumption. In addition, the Agency assumed that homeowners would not apply a sewage sludge product in quantities sufficient to affect the ground water adversely. By eliminating the animal and ground-water exposure pathways, some pollutant concentrations in Table 4 become less stringent than those in the agricultural land application tables. Chlordane and toxaphene concentrations are less stringent in D&M than in agricultural land application because the ground-water pathway was eliminated. The limits for DDD/DDE/DDT, heptachlor, hexachlorobutadiene, lindane, PCBs, toxaphene, mercury, and selenium also are less stringent in D&M because the animal pathways of exposure were eliminated. Selenium is toxic to animals when they eat plants that have absorbed large quantities of the pollutant. The remaining pollutants bioaccumulate through the food-chain and, therefore, limit the pollutant concentration when sewage sludge is applied to agricultural lands.

The Agency is proposing to prohibit grazing or feeding animals intended for human consumption on pastures or crops to which sewage sludge that meets the D&M pollutant limits has been applied. As an alternative, the Agency could include the animal pathways of exposure, if there is sufficient indication

that the D&M scenario should include raising animals for human consumption.

The Agency is interested in the views of commenters on the assumptions it used in defining the D&M scenario. Also the Agency would like to know if the apparent anomaly of less restrictive pollutant limits for the D&M practice, which is otherwise more tightly controlled than agricultural land application, will create problems for those involved in the distribution and marketing of sewage sludge.

Number of Applications

In establishing the numerical limits for the nine metals in Table 4, the Agency had to make assumptions on the number of years that sewage sludge would be applied to the land. The Agency selected 20 applications as a reasonable basis for its calculations. Because the total amount of metals applied to the soil is the critical parameter, it is not important whether the applications are consecutive or whether the applications occur biannually, etc. It is the total amount of metal that is applied to the land that is critical. If the Agency had limited the number of applications to less than 20, the concentration of the metal in the sludge could increase. Conversely, if the Agency had assumed that the number of applications would be greater than 20, the pollutant concentrations would have to decrease.

The Agency examined an alternative of requiring the distributor to specify the number of years on the product label and to use the specified number of years in calculating the limits for metals. This approach was rejected because a homeowner is unlikely to know whether a previous owner had used a sewage sludge product and, if so, how many applications were made. In addition, the proposed approach is simpler to implement. The Agency is soliciting comment on whether 20 years is an appropriate time period to use in establishing the numerical limits for metals.

The pollutants in Table 4 are among the pollutants that are eligible for removal credits when sewage sludge is distributed and marketed. POTWs whose sludge meets the pollutant limits in Table 4 may issue removal credits to their industrial users if the POTW is eligible to do so under the provisions in 40 CFR Part 403.

As discussed in Part XI, the Agency estimates that 35 of 106 facilities will fail to meet the pollutant limits in Table 4.

Distribution and Marketing— Management Practices (§ 503.24)

Labels and Information Sheets

EPA is proposing that sewage sludge products be labeled or accompanied by information on the proper use of the product. When there is a reasonable expectation that individuals will comply with label instructions, the Agency prefers to rely on the use of labels, rather than on licensing or prohibiting the application of a product. EPA has every reason to believe that the instructions included in § 503.24 will be followed.

If the sewage sludge is distributed in bulk form, an information sheet is to be given to the individual who receives the product. If the sewage sludge is distributed in bags or other containers, a label is to be affixed to the bag or container. In general, the label or information sheet is to contain information on the product's distributor, product contents, appropriate product uses, amount to be used, prohibited uses, and warnings. This type of information is on the labels of many sewage sludge products. Fourteen of the 22 States regulating the distribution and marketing of sewage sludge require product labels. Specifically, the labels and informational sheets are to include the following information:

- Name and address of the distributor of the product;
 - Statement that the product is derived from sewage sludge;
 - List of the pollutant concentrations in the product (at a minimum, the list of pollutants is to include the pollutants in Table 4 of 40 CFR 503.23, if they are present, and the nitrogen concentration of the product);
 - Statement prohibiting the use of the product on frozen, snow-covered, or flooded land;
 - Statement prohibiting use, except in accordance with the instructions;
 - Instructions on the appropriate uses of the product;
 - Rate at which the product may be applied for the stipulated uses;
 - Warning to keep product out of reach of children;
 - Statement prohibiting the grazing of animals raised for human consumption on land where the product is applied;
 - Statement prohibiting the use of crops as feed for animals raised for human consumption; and
 - Statement that compliance with the instructions on the label or information sheet will constitute compliance with section 405(e) of the CWA.
- Provided the label instructions are followed, EPA believes that the pollutant concentrations in Table 4

adequately protect human health and the environment. Except for the pathways involving the raising of animals for human consumption, the drinking of ground water from wells that might become contaminated, and the inhalation of volatile organic compounds, EPA has examined all possible pathways through which a pollutant might reach an individual, a plant, or an animal. The numerical limits in Table 4 reflect the pathway that establishes the most stringent pollutant concentration.

A statement prohibiting the application of the product on frozen, snow-covered, or flooded land is specified to preclude product run-off into a nearby river, stream, or lake. Unlike the requirement in Subpart B, this is an absolute prohibition. It would be impossible for all who use the product to demonstrate that if the sewage sludge is applied to frozen snow-covered, or flood land, that the sewage sludge would not reach a river, stream, or lake.

Statements prohibiting animals raised for human consumption from grazing on pastures or feeding on crops grown on soil to which sludge has been applied are included because of the tendency of some of the pollutants to bioaccumulate in the food-chain. As mentioned above, the Agency is requesting comment the need to assume that animals will be raised for human consumption in the D&M scenario and to revise the numeric limits accordingly.

EPA is proposing that the labels include warnings to keep the product out of the reach of children. Over a period of time, eating significant amounts of undiluted sewage sludge out of the bag could adversely affect young children. As described elsewhere in the preamble, the Agency modeled inadvertent sludge-soil mixture ingestion in young children (ages 1 through 5). The Agency did not model the ingestion of pure sludge of young children because either the applicator or natural processes are expected to mix the sludge product with the soil. Therefore, the Agency believes that the warning on the label should provide adequate protection for young children.

The Agency is requiring that the labels or information sheets state the proper amount of the sewage sludge to use because of (1) the requirement that sewage sludge not be applied in excess of the nitrogen requirements of the vegetation and (2) the correlation between the pollutant concentrations and the annual whole sludge or product application rate described above. The instructions should be in terms that an

average individual would understand. For example, if the product is authorized to be applied at an annual product application rate of 15 metric tons per hectare, the phrase, "307 pounds per thousand square feet per year", stated on the label on the information sheet, would be more understandable and more likely to be followed.

Products with higher pollutant concentrations must be applied at lower annual application rates. Questions have been raised whether a homeowner would follow a label if the rate is limited to one metric ton per hectare (i.e., 20.5 pounds per 1000 square feet) or even 5 metric tons per hectare (i.e., 102.4 pounds per 1000 square feet). Some believe that a homeowner might not apply the product at very low rates on the assumption that the sewage sludge would not provide sufficient nutrient and soil conditioning properties at such low rates. If the product were applied at higher rates, the application rate would exceed the authorized pollutant concentrations in Table 4. The Agency is seeking comment on whether instructions for lower application rates are likely to be followed and whether the pollutant concentrations should start at a higher annual whole sludge or product application rate, such as 10 metric tons per hectare (i.e., 205 pounds per 1000 square feet).

Pathogen and Vector Attraction Reduction (§ 503.25)

Sewage sludge that is distributed and marketed is likely to be handled by the general public without protective clothing or applied where public access cannot be restricted. In addition, fruits and vegetables are likely to be planted immediately after the product is applied to the soil. Therefore, all sewage sludge that is distributed and marketed must meet the Class A pathogen reduction requirement in § 503.52(a). As previously explained, Class A pathogen reduction requires that pathogenic bacteria, animal viruses, protozoa, and helminth ova be reduced below levels of detection. Class A requirements may also be met if the treatment processes raise the temperature of the sewage sludge to 53 degrees Celsius and reduce the fecal coliform and fecal streptococci in the treated sewage sludge to less than 100 per gram of volatile suspended solids. The vector attraction reduction requirements are outlined in § 503.53.

EPA is proposing that the treatment works treat the sludge to meet the requirements for Class A pathogen reduction and vector attraction reduction before distributing the sewage sludge to the public or to a distributor. The processes needed to comply with

these requirements are part of the treatment works' processes and are the responsibility of the treatment works.

Monitoring, Record Keeping, and Reports 503.81 and 503.83

Section 503.83 requires that prior to distributing or marketing their sewage sludge, treatment works determine from a representative sample of the sewage sludge the pollutant concentrations and nitrogen content in order to calculate the annual whole sludge application rate. Depending on the frequency with which treatment works distribute a stock pile of sewage sludge to the public or to distributors, the monitoring may take place at more frequent intervals than those in § 503.81(c). Therefore, treatment works may have to hold the sludge until the representative sample can be analyzed. If the distribution of sewage sludge takes place at less frequent intervals than specified in § 503.81(c), treatment works must monitor their sewage sludge at the intervals specified in § 503.81(c). Treatment works also must monitor the sewage sludge to determine compliance with Class A pathogen reduction and vector attraction reduction requirements prior to distribution.

If the treatment work is not the distributor, the distributor must monitor the product for the pollutants in Table 4. The distributor must then calculate the annual product application rate on the basis of the pollutant concentrations in the product and place the annual product application rate on the label or information sheet.

The performance agreement with the distributor contains the information identical to that which treatment works must keep to meet the record keeping requirements in § 503.83(b) and the reports required under § 503.83(c). If the treatment work distributes and markets the sewage sludge, the treatment work is likely to keep these records and will be required to do so under the provisions in §§ 503.83(b) and 503.83(c).

The Agency is proposing retention of records for 5 years, the record retention requirement included in the State program management regulation (40 CFR Part 501). The Agency also considered 3 years. Comment is solicited on the period of time that the Agency should require that treatment works retain records if their sewage sludge is distributed and marketed.

Monofills (Subpart D)

Applicability (§ 503.40)

The requirements contained in this proposal apply to landfills receiving only sewage sludge (monofills) and to

any person who disposes of sewage sludge in a monofill. A monofill is an area of land (i.e., a landfill) that contains one or more units accepting only sewage sludge. These units are covered by suitable material at the end of each operating day or at more frequent intervals. EPA has identified 49 monofills (see Regulatory Impact Analysis) and estimates that just over 100,000 dry metric tons out of the approximately 8 million dry metric tons of the total sewage sludge generated, is disposed of in monofills.

A much larger percentage of the sewage sludge generated (i.e., 41 percent or 3.2 million dry metric tons) is disposed of with municipal solid waste in 6,700 MSWLFs. Sewage sludge typically represents five percent of the total waste in these landfills.

Under the joint authority of Sections 4004 and 4010 of RCRA and section 405(d) of the CWA, the Agency proposed requirements for MSWLFs that apply to sewage sludge that is placed in these landfills (see 53 FR 33314, August 30, 1988). The Agency adopted this approach for the reasons discussed in Subpart A of this part of the preamble. Treatment works using a MSWLF to dispose of their sewage sludge must ensure that their sewage is non-hazardous and passes the Paint Filter Liquid Test. They must also send their sewage sludge to State-permitted facilities. If these requirements are met, treatment works will be in compliance with section 405(e) of the CWA.

Specialized Definitions (§ 503.31)

Class I, Class II, And Class III Ground Water

In August 1984, EPA issued its Ground-Water Protection Strategy (Reference number 38) to set out a policy framework for enhancing ground-water protection efforts by EPA and the States. In December 1986, the Agency released draft "Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy" (Reference number 53). The classification guidelines provide the procedures for implementing the Strategy and can be used in differentiating classes of ground water based on use, value to society, and vulnerability of the ground water to contamination. In developing the definitions of Class I, Class II, and Class III ground water in today's proposal, the Agency used the guidelines as the basis of the definitions.

Class I ground water is defined as an existing source of drinking water or unusually high value that is vulnerable

to contamination and is either irreplaceable as a source of drinking water for substantial numbers of people or is ecologically vital (i.e., habitat for rare or endangered species). Class II ground water includes all non-Class I ground water that is currently used for, or is potentially available for, drinking water. Class III ground water is not a source of drinking water because the ground water has one or more of the following characteristics: (1) The concentration of total dissolved solids (TDS) is greater than or equal to 10,000 milligrams per liter (mg/l); (2) the concentration of pollutant(s) exceeds the drinking water standard(s) and cannot be cleaned-up using treatment methods reasonably employed in public water systems; and (3) the yields are insufficient to meet the needs of an average household (150 gallons per day).

As explained later in this subpart of the preamble, the pollutant limits and the way in which the pollutant limits are calculated depend on the class of

ground water under the monofill. Therefore, in accordance with the definitions in § 503.31 (b), (c), and (d), owners or operators must document the class of ground water underlying the monofill.

In the Spring of 1988, the Agency conducted a probability analysis of the classes of ground water under the 49 current active monofills. For each monofill site, the analysis estimated the probability that a monofill would be located over a Class I, Class II, and Class III ground water (Reference number 54).

All ground water underlying the monofills was estimated to have an 82 percent probability of being designated as Class II. Fourteen monofills had a 16 to 18 percent probability of lying over ground water designated as Class I. Only two monofills had any probability of lying over ground water designated as Class III. These monofills would be over ground water that is not currently being used as a source of drinking water. The

probability analysis was conducted as part of the Agency's effort to assess the impact of the rule on existing facilities. It was not intended to replace State and local site-specific classifications of the ground water underlying each sludge monofill.

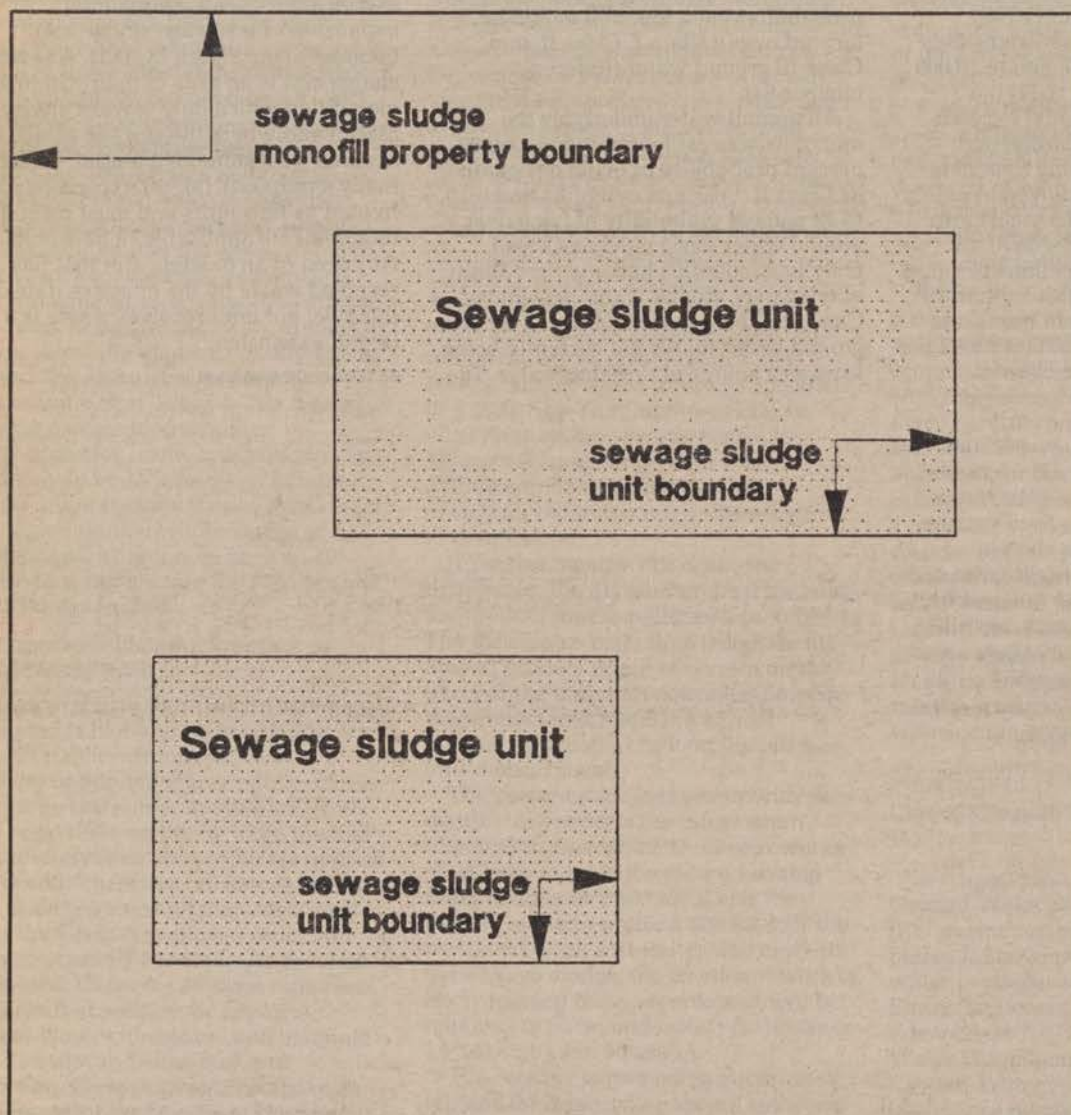
Lateral Expansion

The Agency has defined lateral expansion to mean a horizontal expansion of a sewage sludge unit boundary (see Figure IX-D.1). A sewage sludge unit is an area of land within a monofill in which only sewage sludge is placed and where the sewage sludge is covered with suitable material. Under today's proposal, lateral expansions are treated as new units and must meet the requirements applicable to new units. Any area of an existing unit that has not received waste by the effective date of this rule, but later receives waste is a lateral expansion.

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Figure IX-D.1

SEWAGE SLUDGE MONOFILL AND SEWAGE SLUDGE UNIT



Sewage sludge monofill

General Requirements For Monofills (§ 503.32)

Section 503.32(a) prohibits the disposal of sewage sludge in a monofill unless the requirements of the subpart are met. In addition to the other requirements, owners or operators of monofills must obtain an NPDES permit for any discharge from the monofill (i.e., the collection and discharge of run-off from the monofill).

Requirements For Ground-Water Classification

EPA is proposing in § 503.32(c) that owners and operators document the class of ground water underlying the monofill, in accordance with the definitions of ground water discussed above. The documentation should be confirmed by the appropriate State authority as accurately representing one of the classes of ground water in § 503.31 (b), (c), or (d) and as consistent with the way that the State has classified or would classify the ground water.

"The Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy" (Reference number 53), is an important resource to consult in determining the class of ground water under a monofill. Prior to initiating efforts to classify the ground water under a particular monofill, EPA recommends that owners and operators consult with the appropriate State agencies.

Threatened Or Endangered Species

Monofills should not be located where they would cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife. Care also should be taken to ensure that monofills do not result in the destruction or adverse modification of the critical habitat of such a species. This provision is carried forward from 40 CFR 257.3-2 to ensure that the disposal of sewage sludge is conducted in an environmentally responsible manner.

Requirements For Monofills In Floodplains

In § 503.32(e), EPA is proposing that new and existing monofills located in a 100-year floodplain shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste that would pose a hazard to human health and the environment. Today's proposal would allow new and existing monofills to be located in a 100-year floodplain only if the monofills can be designed and operated to protect

human health, wildlife, or land or water resources.

This requirement may be necessary to ensure adequate protection of human health and the environment from sewage sludge placed in monofills. Floods can damage or undermine the structural integrity of monofills causing release and dispersion of pollutants. Pollutant limitations were derived based upon an assumption of structural integrity of the monofill. Additionally, the model developed to derive limitations accounts for normal rainfall but does not account for the transport of pollutants resulting from the immersion of the monofill by a flood.

Disposal of sewage sludge in floodplains may have significant adverse impacts. If the monofill is not adequately protected from washout, wastes may be carried by flood waters from the site, causing water quality criteria to be exceeded downstream. Filling in the floodplain may restrict the flow of flood waters, causing greater flooding upstream, or may cause more rapid movement of flood waters downstream, resulting in higher flood levels, greater flood damage, and greater risk to human health and the environment.

Owners and operators should use flood insurance rate maps (FIRMS) developed by the Federal Emergency Management Agency (FEMA) to determine whether a unit is located in the 100-year floodplain. FEMA has developed maps for approximately 99 percent of the flood-prone communities in the United States. These maps can be obtained at no cost from the FEMA Flood Map Distribution Center, 6930 (A-F), San Tomas Road, Baltimore, Maryland, 21227-6227. In areas of the country where FIRMS are not available, other sources of information include the U.S. Army Corps of Engineers, the Soil Conservation Service, the National Oceanic and Atmospheric Administration, the U.S. Geologic Survey, the Bureau of Land Management, the Bureau of Reclamation, the Tennessee Valley Authority, and State and local flood control agencies.

If the monofill is expected to, or does, restrict the flow of the 100-year flood and the water storage capacity of the floodplain, the monofill may not be located in the floodplain and must close within one year of the date this rule is promulgated, in accordance with § 503.32(l).

These location and closure requirements should safeguard the 100-year flood flow and water storage capacity of the floodplain from problems related to the location of a monofill.

Other Agency regulations allow activities and facilities in 100-year floodplains if precautions have been taken to prevent washout (see 40 CFR Part 257, 40 CFR Part 264, and proposed 40 CFR Part 258). The Agency is soliciting comment on its proposal to prohibit monofills in the 100-year floodplain if the monofill does, or is likely to, restrict the flow of a 100-year flood.

Requirements for Monofills Near Airports

In today's proposal, § 503.32(f) specifies appropriate distances between monofills and airports. Monofills located within 10,000 feet of airports handling turbine-powered aircraft and within 5,000 feet for airports handling aircraft powered by piston engines must not attract birds that could pose a hazard to aircraft. The proposed requirement is included because monofills may receive putrescible wastes which attract birds despite requirements for daily cover. The birds may present a significant risk of collisions with aircraft. The distances specified are designed to meet the requirements of the Federal Aviation Administration (FAA) Order 5200.5, "FAA Guidance Concerning Sanitary Landfills on or near Airports" (October 6, 1974). This states that solid waste disposal facilities "may be incompatible with safe flight operations" when located near an airport. The distances derived from FAA Order 5200.5 are based on the fact that more than 62 percent of all bird strikes occur below altitudes of 500 feet (150 meters) and that aircraft generally are below this altitude within the distances specified.

EPA recommends that owners and operators of monofills consult with the U.S. Fish and Wildlife Service or the appropriate State agency to determine whether specific facilities pose a hazard to aircraft from birds. Where appropriate, this determination should be made in consultation with the FAA, as well as with the owners and operators of near-by airports. Waste disposal within the specified distances may continue if the owner or operator can demonstrate that the operation does not increase the risk of bird and plane collisions.

Requirements for Monofills in Seismic Zones

Section 503.32(g) of today's proposal would require that sewage sludge units in a monofill located within a seismic zone be designed and built to resist the maximum ground motion. Seismic zones are defined as areas having a ground

motion greater than or equal to 0.10 gravities.

Maps depicting the potential seismic activity across the United States at a constant probability have been prepared (U.S. Geological Survey Open-File Reports 82-1033). The maps show that certain portions of the country have higher levels of seismic hazard than other areas. For example, portions of the eastern United States have higher levels of seismic hazard than portions of the western United States.

EPA is proposing that sewage sludge units of monofills located in seismic zones be built to withstand the maximum ground motion because ground motion could cause cracks in foundations or the collapse of structures. Studies indicate that ground motion resulting from earthquakes without associated surface faulting has been found in some cases to be two or three times that associated with quakes with faulting (Reference number 74). The appropriate peak ground acceleration on which to base the design of the sewage sludge unit may be determined from regional studies and site-specific analyses. Designs appropriate for the peak ground acceleration should be approved by EPA.

Requiring sewage sludge units of monofills to be built to withstand the maximum ground motion is consistent with other Agency rules. However, the Agency is soliciting comment on whether to prohibit the location of monofills in seismic zones.

Requirements for Landfills Near Holocene Faults

In § 503.32(h), EPA is proposing to prohibit the siting of sewage sludge units of monofills in locations within 60 meters (200 feet) of faults that have had displacement in Holocene time. The Holocene is a geologic time unit, known as an epoch, that extends from the end of the Pleistocene to the present (approximately the last 11,000 years.)

Earthquakes present a threat to public safety and welfare in many areas of the United States. Damage and loss of life in earthquakes occur from surface displacement along faults (surface faulting) and ground motion (shaking), as well as secondary effects of the shaking, such as ground or soil failure. Today's proposal is designed to protect facilities from deformation (i.e., bending and warping) and displacement (i.e., the relative movement of any two sides of a fault measured in any direction) of the earth's surface that occurs when the fault moves. If a facility is located near a fault, containment structures (i.e., liners, leachate collection systems, and final covers) may be inadequate to

prevent release of sewage sludge during an earthquake. The Agency is proposing that monofills now located within 60 meters (200 feet) of a Holocene fault close, in accordance with § 503.32(l), within 1 year of promulgation of this rule.

Holocene faults are designated in this proposal because geologic evidence indicates that faults that have moved in recent times (i.e., during the last 11,000 years) are the ones most likely to move in the future. Faults that have moved in Holocene time are easier to identify and date in the field than older faults because this epoch produced recognizable geological deposits. The U.S. Geological Survey mapped the location of Holocene faults in the United States in 1978 (Reference number 74). Maps of identified Holocene faults in the United States also are available from the States of California and Nevada.

EPA is prohibiting sewage sludge units of monofills within 60 meters of a Holocene fault because studies suggest that most deformation takes place within this distance. The effects of deformation drop off rapidly as distance from the fault increases. The farther away the monofill is from the main fault, the less likely it will be to be affected by deformation. EPA's definition of "fault" (see § 503.31(i)) includes main, branch, or secondary faults. This definition includes faults that appear at the surface and those that do not have surface expression (including the small fault planes associated with surface faults). The 60-meter setback would be measured from any surface or subsurface fault, thus giving ample protection against the effects of deformation.

Today's proposal differs from the proposed requirements of 40 CFR 258.13 in that closure of existing MSWLFs is not required for those landfills located in fault areas, although new units are prohibited from being sited in these areas. EPA does not have sufficient information to justify allowing existing sewage sludge units to remain open while prohibiting the siting of new monofills or sewage sludge units in these areas.

Requirement For The Location Of Monofills In Stable Areas

EPA is proposing that monofills be located in areas having adequate support for the structural components of the sewage sludge units (§ 503.32(i)). Locating monofills in unstable areas is inappropriate because, if the soil subsides, damage to the monofill may cause extensive environmental damage

and, potentially, adverse human health effects.

To determine if an area is unstable, the following factors should be considered: (1) Soil conditions that cause significant differential settling; (2) geologic or geomorphologic features such as areas prone to mass movement, Karst terrains, or fissures; (3) surface areas weakened by withdrawal of oil, gas, or water; and (4) other features that historically have indicated that protective measures cannot be designed to withstand a natural event such as a volcanic eruption. A detailed description of unstable areas is contained in the "Technical Support Document: Landfilling of Sewage Sludge" (Reference number 58).

EPA has not tried to delineate all potential unstable areas. Rather, EPA believes that owners or operators, in conjunction with the permitting authority and on a case-by-case basis, will make determinations on the stability of an area and on the appropriateness of an area for a monofill. The Agency has proposed a similar requirement for MSWLFs and is considering such a requirement in its revisions to the hazardous waste landfill regulation.

Section 503.32(l) requires closure of sewage sludge units of monofills that are located in unstable areas within 1 year. This differs from the proposed requirements for MSWLFs (40 CFR 258.15) in that closure of existing MSWLFs in unstable areas is required within 5 years of the effective date of rule. This period, however, may be extended by the State after considering the availability of alternative disposal capacity and the potential risk to human health and the environment. Such a consideration is allowed under the "practicable capability" language of RCRA, while the CWA has no such provision. In addition, the CWA requires compliance within 1 year of the effective date of the regulations. For these reasons, the requirements in today's rule differ from those in 40 CFR 258.15.

Prohibition of Monofills In Wetlands

Section 503.32(j) includes a provision to prohibit the location of sewage sludge units of monofills within the perimeter of wetland areas. Wetland areas are defined as those "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs,

and similar areas" (see 40 CFR Part 230). Wetland maps are available from the U.S. Fish and Wildlife Service.

Constructing sewage sludge units, essentially a fill operation, has the potential for causing significant environmental damage in a wetland. Such damage cannot be restored because of the complexities and fragility of the wetland ecosystem. In 40 CFR Part 258, new facilities are allowed in wetlands provided very strict demonstrations are made. The Congressional directive in Section 4010 of RCRA, as amended, allows EPA to consider the "practicable capability" of owners and operators of facilities that may receive household hazardous waste or small quantity generator waste in determining the standards to be set. The CWA has no such statutory authority for the sewage sludge reuse and disposal standards.

The Agency has identified wetlands protection as a top priority and, since the proposal of the Part 258 requirements, has under consideration the prohibition of all landfill operations in wetlands. The Agency believes more appropriate locations may be found for the siting of monofills. Section 503.32(l) requires sewage sludge units of monofills located in wetlands to close within 1 year. We invite comment on the appropriateness of this prohibition.

Requirement For Water Collection And Discharge

Section 503.32(k) requires the collection and discharge of the volume of water from the 24-hour, 25-year storm event, in accordance with an applicable NPDES permit. The Agency is proposing this requirement to ensure that the pollutants in the runoff from sewage sludge units in a monofill are collected and, if appropriate, treated in accordance with an NPDES permit. Control of surface runoff may be accomplished by (1) minimizing water that enters the active sewage sludge units of the facility (run-on controls), (2) minimizing the size and number of active sewage sludge units in a monofill, (3) preventing the disposal of sludge with low solids content, and (4) collecting and managing the runoff. Today's proposal only requires the collection and management of the runoff.

The Agency chose the 25-year storm as the design parameter to be consistent with the requirements for hazardous waste landfills in 40 CFR 264.301(g) and the proposed requirement in 40 CFR 258.26(a)(2). Both of these provisions require the active portions of the landfill to be protected from the peak discharge

of a 25-year storm. Twenty-seven States require runoff controls for their landfills.

EPA is requesting information on problems that communities may have encountered with locating monofills in areas subject to more frequent flooding (e.g., in 5- or 10-year floodplains) and whether the Agency should consider prohibiting or restricting the location of monofills in areas of frequent flooding.

The Agency also considered requiring run-on controls to prevent flow onto the active portion of the landfill during the peak discharge from a base flood, as is required in 40 CFR 258.26(a)(1). Such controls minimize both the generation of leachate and the volume of runoff which must be collected.

Rainfall and the generation of leachate is considered in the exposure assessment model for calculating the pollutant concentrations for disposing of sludge in monofills. Since leachate generation is already taken into the pollutant limits, a requirement for run-on controls is unnecessary. While run-on controls do minimize runoff, the decision on how to meet the standard is left to the owner or operator of each treatment work. EPA, therefore, rejected this requirement as redundant. Comments are requested on the advisability of requiring run-on controls in addition to controls of surface water runoff.

Closure Requirements

Section 503.32(l) requires that existing sewage sludge units located within 60 meters of a fault or stress fractures that have had displacement in Holocene time, located in unstable areas, or located in wetland areas close within 1 year of the effective date of this rule. This requirement is necessary because section 405(d)(2)(D) of the CWA requires compliance with these rules within 1 year of their promulgation.

Closure Plan

Section 503.32(m) of today's proposal requires that owners or operator prepare a written closure plan for each sewage sludge unit that will need to be closed. The closure plan is necessary to ensure that owners or operators have considered and planned for the necessary activities (e.g., the type of final cover, the cover maintenance, gas venting, and public access controls) to close the sewage sludge unit in a manner that will continue to protect human health and environment. The final cover must be designed to minimize volatilization of pollutants, settling, subsidence, erosion, or other events and prevent runoff from, or other damage to, the final cover. Although the Agency believes the numerical limits and management practices required in

today's proposal are adequate to protect human health and the environment, the requirement for a closure plan ensures continued human health and environmental protection, particularly for monofills receiving sewage sludge before the promulgation of today's requirements.

Today's proposal for a closure plan requires that the final cover, gas venting, and public access controls be maintained for 10 years. This requirement is based in part on a recent study entitled "Pilot Scale Evaluation of Sludge Landfilling—Four Years of Operation" (Reference number 76). In that study, sewage sludge, sewage sludge mixed with municipal solid waste (MSW) and MSW itself were placed in simulated landfill cells and methane production was monitored for 3 years and seven months. The results indicate that gas production levels off by the end of the third year. However, because this experiment was a laboratory simulation and was not performed on an operating landfill, there is uncertainty as to the time required for methane gas production to practically cease in an operating landfill. To account for this uncertainty and to allow a safety factor, a 10-year period of methane monitoring was selected for the proposal. States may extend the period of time for post-closure care if it is deemed appropriate. The Agency is soliciting public comment on the 10-year time period and would be particularly interested in hearing from those States and municipalities with monofills.

Financial Assurance Requirements

Financial assurance requirements were considered, but rejected, for this rule. Financial assurance is primarily aimed at fulfilling the closure responsibilities under the closure plan and for corrective action in the event of contamination of ground water.

Today's rule is based on sewage sludge meeting the concentration limits for pollutants in the sludge and on monitoring the sewage sludge to comply with this requirement. Complying with the concentration limits will protect ground water from contamination during the period of active use and the period covered by the closure plan. Further, the costs of closure under the closure plan required at § 503.32(m) are expected to be minimal. For these reasons, the Agency did not believe the limited possibility that the pollutants would leach to the ground water in concentrations in excess of the drinking water standards warranted the imposition of an extensive burden of financial responsibility on owner or

operators. EPA invites comment on the advisability of adding financial assurance requirements to the monofilling portion of today's rule.

Wellhead Protection Areas

In addition to the location requirements discussed above, EPA recommends that owners and operators consider the location of any Wellhead Protection Areas established pursuant to section 1428 of the Safe Drinking Water Act and any management strategies established by a State under such programs. The Wellhead Protection Program is designed to protect ground water that supplies wells and wellfields that contribute drinking water to public water supply systems.

The Agency solicits comments whether State or local restrictions are adequately protective and comprehensive or market forces are adequate to obviate the need for any of these proposed Federal regulatory requirements. (For example, are there State regulations that would prevent inappropriate location of monofills in floodplains? Do existing insurance requirements accomplish the same objective as today's floodplains proposal?) If there are such existing requirements, to what extent is it appropriate for the Agency to rely on them in lieu of regulatory provisions in Part 503?

Monofills—National Pollutant Limits (§ 503.33)

Ground-Water Protection Standard

The objective in establishing the pollutant limits for the disposal of sewage sludge in monofills is to ensure that the pollutant concentrations reaching the ground water do not exceed the drinking water standard or, if no drinking water standard exists, other appropriate human health criteria. This ground-water protection standard is the basis for the Agency's determination that the pollutant limits are adequate to protect public health and the environment from any reasonably anticipated adverse effect of a pollutant.

The Agency used exposure assessment models to simulate the movement of the pollutant into and through the soil profile to the ground water. The models calculate a pollutant concentration that will not exceed an MCL at the point of compliance. For Class I ground water, the point of compliance is the point where the leachate enters the aquifer. For Class II and Class III ground water, the point of compliance is immediately below the property boundary or 150 meters from

the point of entry to the aquifer, whichever is less.

The critical parameters in the model are those listed in Table 6 of the proposed rule. In selecting the parameters for development of the rule, the Agency made conservative, but reasonable, worst-case choices to assure an adequate level of protection. Therefore, these parameters tend to over-estimate the mobility of the pollutant out of the sludge matrix, thus reducing the time for the pollutant to reach the ground water.

For example, the model assumes that all pollutants eventually solubilize. However, there is evidence that the pollutants in a sludge matrix are strongly attached to the matrix and do not go into solution or readily leach to the ground water. This is particularly the case with sewage sludge, a by-product of wastewater treatment processes. Any readily soluble pollutant would be removed during treatment processes and contained in the effluent leaving the treatment works, rather than present in sewage sludge. The other critical parameters are discussed in Part IV of the preamble. This combination of reasonable worst-case assumptions used in the models has the effect of increasing the toxicity and potency of a pollutant, increasing its mobility to ground water, and intensifying its effect. Thus, this compounding of conservative factors introduces an added margin of safety in the calculation of the pollutant concentrations. On the basis of these analyses, it is the Agency's belief that the pollutant concentrations meet the ground water protection standard and adequately protect public health and the environment.

Today's proposal modifies and expands the approach used in the "Criteria For Classification Of Solid Waste Disposal Facilities and Practices" (see 40 CFR Part 257). § 257.3-4 establishes a general prohibition on the contamination of an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary specified in accordance with the requirements in the rule. This generic standard was not accompanied by monitoring to ensure compliance.

Today's proposal replaces 40 CFR Part 257, as it applies to sewage sludge, with an approach that takes advantage of the information gathered in the past 10 years. It builds on the ground-water protection standard concept by establishing limits for the sludge on a pollutant-by-pollutant basis to ensure that the concentration of the pollutant reaching the ground water will not exceed the drinking water standard or

another appropriate standard. In addition, by requiring the analysis of pollutant concentrations in the sewage sludge placed in a monofill, the Agency is providing a mechanism to ensure that the ground-water protection standard will not be exceeded. Therefore, in preparing today's proposal, the Agency has not carried over the generic ground-water protection standard in 40 CFR 257.3-4, but is requesting public comment on whether it should do so as an additional check on the efficacy of the pollutant-specific sewage sludge limitations.

A fundamental regulatory principle used in developing today's rule is pollution prevention. The Agency believes that it is more protective and equitable to prevent sewage sludge contamination by controlling pollutants at the source than it is to require clean-up of the contaminated ground water. Therefore, controlling the quality of the sludge placed in the monofill is an overriding objective of today's standards.

This up-front sludge pollution prevention approach is different from the alternative approach taken in the proposed "Solid Waste Disposal Facility Criteria" (see 53 FR 33314, August 30, 1988). The proposed criteria revisions for MSWLFs use location, design, and operating criteria to achieve a ground-water protection performance standard. In addition to those criteria, the Agency also proposed that owners or operators of MSWLFs monitor the ground water and take corrective action when pollutants in the ground water exceed State-established trigger levels. This ground-water monitoring serves as a method of verifying the adequacy of the design and operation of a particular MSWLF. Ground-water monitoring and corrective action were mandated for the proposed criteria revisions by Section 4010 of RCRA "as necessary to detect contamination".

Consistent with the principle of pollution prevention, today's proposal requires that treatment works monitor the quality of the sludge before the sludge is placed in the monofill. The available scientific and technical information indicates that, if the pollutant concentrations do not exceed the limits in today's proposal, the pollutants are unlikely to migrate to the ground water, especially at levels that exceed the drinking water standards. In such circumstances, the Agency believes that requiring ground-water monitoring and corrective action, in addition to sludge testing, is not justified by the regulatory record.

Because of the characteristics of the sewage sludge that bind the pollutants

into a sludge matrix, it is highly unlikely that any leaching of the pollutant to the ground would occur within the design life of 30 to 40 years for a monofill. The Agency is requesting public comment on the correctness of its approach. The Agency is also soliciting comment on whether ground-water monitoring would be an appropriate protective measure to back-stop the proposed pollutant specific sludge limitations, and on whether corrective action should be required if the monitoring indicates that ground-water protection standards have been exceeded.

The Agency further requests comment on the need for ground-water monitoring and corrective action for those who apply sewage sludge to agricultural and non-agricultural land and to those who dispose of sewage sludge at sewage sludge surface disposal sites. The Agency is also interested in opinions on the effects of such measures on the beneficial reuse of sewage sludge.

Pollutants

EPA is proposing numerical limits in the form of pollutant concentrations for 18 pollutants when sewage sludge is placed in monofills. Table III-1 lists the pollutants that were originally evaluated and Table III-2 lists the pollutants that do not interfere with the disposal of sewage sludge in monofills. Chlordane, chromium, and nickel were found not to interfere with the disposal of sewage in monofills over Class II or Class III ground water, but may adversely effect human health or the environment if the monofill is over Class I ground water. Since Class I ground water is irreplaceable as a source of drinking water, the Agency is proposing more stringent numerical limits for monofills over Class I ground water. This will be discussed in depth later in this subpart of the preamble.

When the Agency originally evaluated cyanide with the exposure assessment model, significant violations of the cyanide drinking water standard were predicted because of the following assumptions:

- All of the cyanide in sludge partitions to the leachate;
- No decay of cyanide occurs as the leachate percolates through the soil to the ground water; and
- No cyanide precipitates out of solution with metals once the leachate mixes with the ground water.

These assumptions were included in the model because no data were available to quantify the leaching, decay, or precipitation of cyanide compounds. However, under the anaerobic environment below landfills, cyanide would be expected to decompose into ammonia and methane.

EPA's Water Engineering Research Laboratory (WERL) investigated the potential for cyanide leaching from sewage sludge (Reference number 76). Sewage sludge samples were collected from POTWs in 12 cities in Ohio serving populations from 5,000 to 400,000. The 12 samples were split, with half the samples analyzed by WERL and half sent to an EPA contract laboratory. The contract laboratories extracted the samples using the zero head space extractor procedure outlined in the TCLP (40 CFR Part 261, Appendix II).

Standard methods were used to analyze the sludge samples and TCLP extracts for total cyanide, weak acid dissociable cyanide, and percent solids. The quality control checks for the analyses indicated good precision and excellent recovery of spiked cyanide.

The sludge samples contained concentrations of total cyanide ranging from 0.9 to 605 ppm but analyses showed no detectable levels of cyanide in any of the leachate samples. The study demonstrated that cyanide forms complexes with the metals in sewage sludge and thus does not readily leach from the sludge. From these results, EPA concluded that its assumption on the amount of cyanide leaching from the sludge matrix was in error. Therefore, the Agency is not proposing a numerical limit for cyanide in sewage sludge that is disposed of in a monofill.

Table III-3 lists pollutants for which the Agency has deferred proposing a numerical limit until sufficient data become available to use in its exposure assessment model. As noted earlier in the preamble, EPA has recently established human health criteria for methylethyl ketone and methylene chloride. Therefore, these two pollutants will be evaluated in future Part 503 rulemaking proceedings.

For EPA to establish a numerical limit for cobalt, an MCL or an acceptable daily intake value would be needed. For phenanthrene, the Agency needs data on the soil half-life of phenanthrene and an MCL or sufficient data to establish a

risk specific dose or an RfD. The Agency is seeking data on these pollutants and is requesting that commenters send available data to facilitate the evaluation of these pollutants in future Part 503 rulemaking proceedings.

Bases of Pollutant Limits

Table 5 in § 503.33 of the proposed rule lists the 18 pollutants for which the Agency is proposing numerical limits. These numerical limits are established so that the concentration of the pollutant will not exceed a human health criterion at the point of compliance for Class I ground water. The point of compliance is where the leachate enters the ground water. For Class II and Class III ground water, the point of compliance is immediately below the property boundary of the monofill or 150 meters from the point of entry, whichever is less. The human health criteria are: (1) MCLs established under the Safe Drinking Water Act, (2) a risk specific dose corresponding to an incremental carcinogenic risk level of 1×10^{-4} (one cancer incident in 10,000) for carcinogenic pollutants that have no MCL, or (3) an RfD for non-carcinogenic pollutants that have no MCL. For the reasons described earlier, EPA is using existing Agency standards as the human health criteria in the models. MCLs were used for arsenic, benzene, cadmium, copper, lead, lindane, mercury, trichloroethylene, and toxaphene. The Agency used a risk specific dose and an incremental carcinogenic risk level of 1×10^{-4} as the human health criteria for benzo(a)pyrene, bis(2-ethylhexyl)phthalate, chlordane, DDT/DDE/DDD, dimethylnitrosamine, and PCBs.

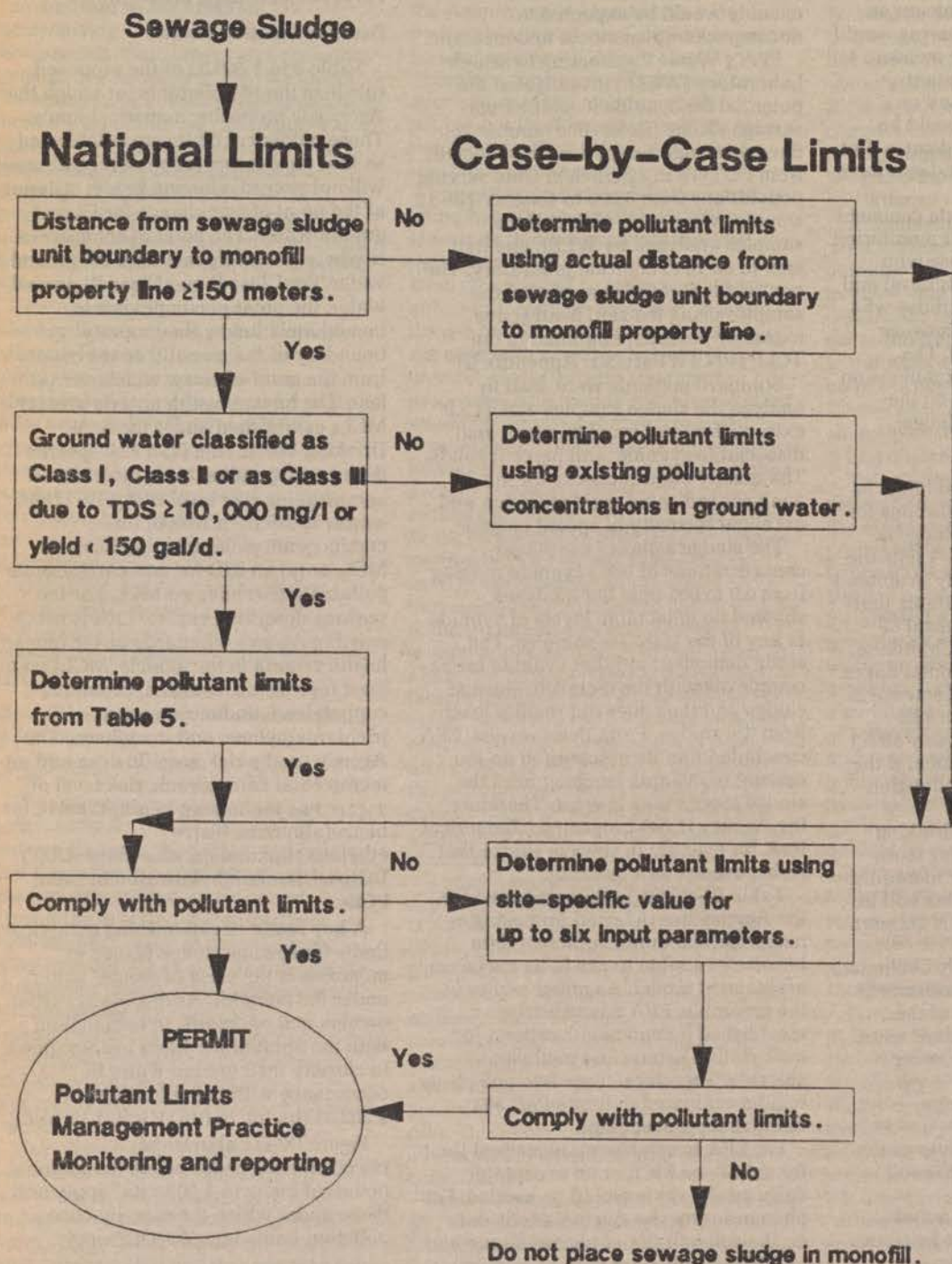
A key factor in establishing numerical limits for sewage sludge placed in monofills is the class of ground water under the monofill. As discussed earlier, owners and operators, in conjunction with the appropriate State agency, need to classify their ground water in accordance with the definitions in § 503.31 (b), (c), or (d)(1), (d)(2), or (d)(3).

Figure IX-D.2 shows the circumstances under which the national pollutant limits in § 503.33(a) apply and those under which the case-by-case pollutant limits in § 503.33(b) apply.

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Figure IX-D.2

SEWAGE SLUDGE MONOFILL



National Limits

EPA is proposing national numerical limits for the pollutants in Table 5 of § 503.33 of the proposal. These values apply to monofills where the boundaries of the sewage sludge units are 150 meters or more from the property boundary of the monofill. If the distances are less than 150 meters, EPA calculates case-by-case numerical limits.

The national numerical limits apply to monofills over Class I, Class II, and Class III ground water unless the ground water is not a source of drinking water because the background ground-water pollutant concentrations exceed the MCL or other human health criteria listed in Appendix A of the proposed rule. For monofills located over ground water in which the background pollutant concentrations exceed the values in Appendix A, the procedure in § 503.33(b) (2) is used to establish case-by-case numerical limits.

As shown in Table 5 of the rule, one set of values applies to monofills over Class I ground water. A different set of values applies to monofills over Class II ground water, as well as to those over Class III ground water that is not a source of drinking water because either TDS levels exceed 10,000 milligrams per liter or the yields are insufficient to supply the needs of an average household (i.e., 150 gallons per day).

Although Class III ground water is not used as a source of drinking water because of TDS or yield limitations, the Agency does not believe that Class III ground water should be allowed to deteriorate. At some future time, technology may become available to reduce TDS levels. Moreover, the need for ground water may be so acute in water scarce areas that concepts of the yields necessary to supply an average household (150 gallons per day) may not be valid.

If the pollutant concentrations of the sewage sludge to be disposed of in a monofill exceed the values in Table 5, the owner or operator of the monofill or treatment work (if different from that of the monofill), may submit data, in accordance with the procedures in § 503.33(b)(3), documenting that values other than those listed in Table 6 of the rule should be used in calculating a numerical limit using the EPA or other approved model. The discussion below describes how EPA will use site-specific data to calculate alternative pollutant concentrations.

Case-By-Case Limits

As discussed in Part VIII of the preamble, when EPA uses the exposure

assessment models to establish numerical limits, alternative numerical limits may be established on a case-by-case basis when the physical parameters at a site differ from those used in the model. In developing the standards for monofills, EPA is proposing three circumstances under which the Agency would establish case-by-case numerical limits. Sections 503.33(b) (1) and (2) mandate the calculation of case-by-case numerical limits. Section 503.33(b)(3) allows case-by-case numerical limits when the values in Table 5 are exceeded. Each subparagraph of § 503.33(b) is discussed in turn below.

When a monofill has a sewage sludge unit that is less than 150 meters from the property boundary of the monofill, § 503.33(b)(1) requires EPA to calculate numerical limits for the pollutants in Table 5. The Agency would use the actual distance to the property boundary as the amount of dilution that would be factored into the EPA-approved exposure assessment model so that numerical limits will not exceed the human health criteria at the point of compliance (i.e., the property boundary). For the other parameters in the model, EPA will use the values in Table 6 unless the owner or operator can demonstrate that other site-specific values should be used. In the latter case, EPA will use the site-specific values in accordance with § 503.33(b)(3) discussed below.

Section 503.33(b)(2) requires EPA to calculate case-by-case numerical limits for those monofills over ground water categorized as Class III because the background ground water concentration of one or more pollutants exceeds the values in Appendix A of the rule. The values in Appendix A are the MCLs, the risk specific doses corresponding to an incremental carcinogenic risk level of 1×10^{-4} , or the RfDs, as appropriate. Owners or operators of monofills are to supply EPA with the background ground water concentration for those pollutants exceeding the values in Appendix A. EPA will then calculate a concentration for the pollutant in sewage sludge so that further degradation of the ground water will not occur because of the disposal of sewage sludge in a monofill. For other parameters in the model, EPA will use the values in Table 6 of the rule. For those pollutants that do not exceed the values in Appendix A, the values in Table 5 apply.

If the concentrations of one or more pollutants exceed the limits listed in Table 5, § 503.33(b)(3) allows the owner or operator to submit documentation that site-specific data, rather than the values shown in Table 6, should be used

in calculating the pollutant concentrations for sewage sludge placed in the particular monofill. EPA will recalculate the numerical limits for all pollutants listed in Table 5 using the site-specific data that the owner or operator submits for the parameters in Table 6. If owners or operators choose not to submit data for one or more of the parameters in Table 6, EPA will use the values in Table 6.

The parameters included in Table 6 are depth to ground water, partition coefficient for the unsaturated zone, soil type, net ground-water recharge rate, ground-water electromotive potential (Eh), and ground-water pH. As discussed previously, these are the parameters that, if changed, make a significant difference in the allowable pollutant concentrations (i.e., the pollutant concentration in sewage sludge that does not exceed an MCL or other human health criterion at the point of compliance). The "Technical Support Document: Landfilling of Sewage Sludge" (Reference number 58) documents the values for the parameters in Table 6 and lists the sources for, and the ways in which owners and operators may determine, the site-specific values for these six parameters.

If one or more of the parameters in Table 6 is changed, EPA would calculate new numerical limits for all pollutants in Table 5. The reason for this approach is that a parameter may affect different pollutants in different ways. For example, if changes were made in ground-water pH or net ground-water Eh, the allowable pollutant concentration of some metals would increase while the allowable pollutant concentration of other metals would decrease. Since the model EPA used can calculate the numerical limits simultaneously, it is a simple and straight-forward procedure to recalculate all the numerical limits.

The rule allows site-specific modeling to derive the numerical concentration limits for sludge disposed of in monofills. The rule does not preclude the applicant from incorporating into the model the sites' artificial characteristics (e.g., a synthetic liner) in addition to its natural characteristics (e.g., a natural clay liner). The applicant is thus not prevented from incorporating the effect that containment measures would have on infiltration or recharge flow rates through the fill material and on the porosity and pollutant sorption beneath the fill. The numerical limits are thus capable of being modified to account for the effect of containment measures such as liners.

Nevertheless, the Agency's model was not developed with the specific intent of describing the behavior of liners or other containment measures. Furthermore, in its current form it cannot account for any deterioration in containment effectiveness that may occur over time. The Agency is soliciting comment on whether the model should be modified to account for the effect of liners and the assumptions that the Agency should use in doing so.

If the sewage sludge that a treatment work wishes to place in a monofill continues to exceed the numerical limits in Table 5 or the numerical limits that EPA calculated on a case-by-case basis, the treatment work must either reduce the concentration of the pollutants through more stringent local pretreatment limits or find an alternative way of managing the sewage sludge.

As discussed in Part XI of the preamble, the Agency estimates that all of the facilities are likely to exceed the numerical limits in Table 5. However, this estimate does not take into account the possibility that some sewage sludge may come into compliance when site-specific data is used to re-calculate numerical limits.

Lead

The concentration for lead in Table 5 of the proposal is based on the existing MCL of 50 ($\mu\text{g}/\text{l}$). The Agency has proposed a new MCL for lead (see 53 FR 31516, August 18, 1988) of 5 $\mu\text{g}/\text{l}$ in water leaving the drinking water plant. Because lead frequently leaches from pipes, the Agency proposed that, if a specified number of "morning first draw" tap water samples exceed 10 $\mu\text{g}/\text{l}$, public water supply systems would be required to implement a State-approved treatment plan. Although EPA proposed a number of alternatives and received public comment on them, the Agency is seeking public comment today on whether 5 or 10 $\mu\text{g}/\text{l}$ should be the basis of the numerical concentrations for monofills. The effect of using 5 or 10 $\mu\text{g}/\text{l}$ lead limitations is shown below:

MCL	Class I ground water	Class II and III(1) and (3) ground water
5 $\mu\text{g}/\text{l}$	0.068	37.9 $\mu\text{g}/\text{l}$
10 $\mu\text{g}/\text{l}$	0.079	82.1 $\mu\text{g}/\text{l}$

The Agency requests public comment on the lead level it should use as the human health criterion.

Non-Degradation of Class III Ground Water

The Agency also seeks guidance on the approach it is proposing for Class III ground water that is not a drinking water source because the background ground-water concentration of one or more pollutants exceeds the values in Appendix A. Under the proposed approach, numerical limits would be set so that the background ground-water concentration of a pollutant would not be exceeded.

The Agency is proposing this approach because it does not want any further degradation of ground water in case future technological advances allow public treatment systems to treat polluted ground water economically. However, EPA recognizes that this approach is relatively more stringent for ground water that is not a source of drinking water than the approach for Class II ground water that is a current or potential source of drinking water or the approach for Class III ground water that is not a source of drinking because of TDS levels or yield limitations. For Class II ground water and for the other two categories of Class III ground water, EPA is establishing numerical limits to prevent pollutants from exceeding the MCL or other appropriate human health criteria. Potentially, pollutant levels in monofills located over high quality ground water (i.e., ground water with pollutant concentrations below the MCL or other human health criteria) could increase as long as the pollutant levels did not exceed the MCL or other appropriate human health criteria. The Agency is seeking public comment on whether the basis of the numerical limits for this type of Class III ground water should be some value other than background concentrations.

In addition, the Agency is soliciting public comment on the need to propose, and the basis of numerical limits for, a "non-degradation policy" for all ground water underlying a monofill. Such a policy would require owners or operators to analyze their ground water for background ground water concentrations, regardless of the class of ground water under the monofill. It would also require the Agency or the permitting authority to set case-by-case numerical limits for all monofills; no national limits would be established in the rule. Under a "non-degradation" policy for Class I and Class II ground water, numerical limits for monofills could be based on background concentration or a percentage over background concentration.

Monofills—Management Practices (§503.34)

Daily Cover Requirement

Today's proposal requires that suitable cover material be applied at the end of each operating day or at more frequent intervals, if necessary, to control disease vectors, gas venting, odors, and scavenging. Covering the wastes helps control disease vectors, rodents, and odors if putrescible wastes are placed in the monofill. Cover material also reduces air emissions from the monofill, lessens the risk and spread of fires, and reduces infiltration of rainwater, which, in turn, decreases leachate generation and potential surface and ground water contamination. As an additional benefit, daily cover enhances the appearance of an otherwise aesthetically displeasing site and may increase the number of beneficial uses for the site after completion of the filling activities. Cover is normally applied over sludge the same day that the sludge is placed in trenches. The soil excavated during trench construction provides the material that is used for daily cover.

EPA is not specifying the type or amount of cover material to be used, leaving the determination of "suitable material" and minimum cover depth up to the permitting authority. However, good engineering practice suggests that a 6-inch depth of compacted earthen material be used as cover material. Tests have shown that 6 inches of compacted sandy loam soil prevents fly emergence, and daily (or more frequent) cover has been shown to reduce the attraction of birds and to discourage rodents from burrowing into the waste (Reference number 77).

Nineteen States and territories have requirements for daily, intermediate, or final cover. Seven States require 6 inches of daily cover and one State requires 12 inches. One State requires 6 inches of daily cover over stabilized sludges and 2 feet over unstabilized sludges. Four other States require only that solid waste and sludge be covered at the end of each day.

Intermediate cover is specified by two States. One requires 24 inches of intermediate cover, while the other does not specify a depth for the required intermediate cover. Eight States specify a depth of final cover. Six States require 2 feet and two States require 3 feet (Reference number 52). In the closure plan, EPA requires owners or operators to provide a final cover and to maintain that final cover for 10 years. EPA requests comments on the daily cover requirement and whether there are

circumstances when EPA should exempt the requirement.

Methane Gas Monitoring

The decomposition of sewage sludge produces methane gas that, if allowed to accumulate, can migrate to monofill structures or nearby off site structures resulting in fire and explosions and potentially injuring or killing employees and occupants of nearby structures. EPA established an explosive gas criterion in 40 CFR 257.3-8(a) to regulate the concentration of methane in facility structures and at the property boundary. This requirement is expanded in today's proposal consistent with the proposal for MSWLFs.

Section 503.34(b) requires that the concentration of methane gas generated in a sewage sludge monofill shall not exceed 1.25 percent methane in any structure within the sewage sludge monofill and shall not exceed 5.0 percent methane at the property line of the sewage sludge monofill. Five percent methane is the lower explosive limit (LEL). This is the lowest percentage, by volume, of a mixture of explosive gases that will flame at 25 degrees Celsius (77 degrees Fahrenheit) at atmospheric sea level pressure. Today's proposal would require that the concentration of methane generated by the monofills not exceed 25 percent of the LEL (i.e., 1.25 percent methane) in facility structures (excluding gas control or recovery system components) and the LEL itself at the property boundary. EPA based its selection of the 25-percent criterion on a safety factor recognized by other Federal agencies as being appropriate for similar situations (Reference number 77). The Agency is not requiring the same 25-percent criterion at the property boundary, since gases at or below the LEL at the property boundary will become diffused before passing into any structure beyond the property boundary. Requiring that the LEL for methane not be exceeded at the property boundary protects against offsite explosions. The Agency believes that the limits in § 503.34(b) adequately protect public safety without being unduly restrictive.

For owners and operators to comply with the methane gas requirement, they will have to install (if they have not already done so) equipment to monitor methane continuously in the buildings and at the property boundary. This equipment must be maintained for 10 years after closure, as required by § 503.32(m)(3). Twenty-eight States have gas monitoring requirements for landfills.

Other Volatile Organic Compounds (VOCs)

By limiting the concentration of methane gas to 1.25 percent in buildings located in monofills, the Agency believes that other volatile organic compounds (VOCs), such as trichloroethylene, that may still be present in sewage sludge should not pose any human health problems. The sewage sludge placed in monofills will be digested to meet a minimum of Class B pathogen reduction requirements. Digestion raises the temperature of the sewage sludge and evaporates most, if not all, of the volatile portion of the organic compounds. Any remaining VOCs are unlikely to represent more than a tiny fraction of the gases (largely methane) produced by the degradation of the organic compounds in the monofill. Therefore, the Agency did not examine the potential for human health effects associated with volatile organic compounds from the uncovered surface of the monofill which might seep into facility structures during the working portion of the day. EPA believes that the evaporation of VOCs from the open portion of the monofill, rather than seepage, would likely pose a greater health risk. However, the Agency will carefully examine and consider evidence indicating that its assumptions are incorrect.

In its proposal for MSWLFs, EPA proposed to regulate other gases because these landfills appear to be a source of air pollutants (see 53 FR 33338, August 30, 1988). Gases of decomposition originate within a municipal landfill and vent to the atmosphere by vertical migration or lateral migration. Landfill gas is generated by chemical reactions and by microbial degradation of refuse materials into a variety of simpler compounds. Typically, landfill gas consists of nearly 50 percent methane, 50 percent carbon dioxide, and trace constituents of VOCs and other toxic constituents. Pollutants commonly found in gas at municipal landfills include vinyl chloride, benzene, trichloroethylene, and methylene chloride. Some of these compounds can create an unpleasant odor nuisance, while the VOCs and other toxic emissions can constitute a health hazard. This is in addition to the dangers from the explosive potential of methane. EPA decided to regulate air emissions from MSWLFs under section 111(b) of the Clean Air Act, for new landfills, and section 111(d) for existing landfills. Under section 111(d), EPA is preparing air emission guidelines that are to be adopted by the States. They

will prepare plans for controlling existing sources of air emissions from municipal landfills, according to the EPA guidelines. The regulations will be based on both collecting and controlling landfill gas. EPA plans to propose air emission standards for these landfills in the near future.

EPA is uncertain that similar air pollution problems are prevalent at monofills. The Agency is soliciting data on any monofill air monitoring by States to assist in determining if regulation of air emissions from landfills should be expanded to include the 49 existing monofills and any new monofills.

Access Controls

Section 503.34(c) requires that access to monofills be controlled, as appropriate, to protect human health and the environment from methane gas hazards and other hazards that could result from disturbing the monofill cover. Access controls are also necessary to prevent illegal dumping and to keep unauthorized vehicular traffic from disturbing the monofill cover. Keeping trespassers off sludge landfills is important because the sludge may not be sufficiently stable to support their weight. Unauthorized access to monofills may be prevented by placing gates with locks at all entrances (access roads) to the site. Other provisions may need to be investigated on a site-by-site basis. EPA is allowing owners and operators the flexibility to implement systems appropriate for their facilities based on the characteristics of their sites, but signs and gates should be posted across access roads even in remote areas. Twenty States require access controls to landfills.

Pathogen Reduction Requirements (§ 503.35)

Section 503.35 requires that sludge placed in monofills meet, at a minimum, the Class B pathogen reduction requirements in § 503.52(b) of the rule. As explained elsewhere in the preamble, Class B pathogen reduction requirements include requirements for access and use restrictions. The access restrictions in Subpart D of today's proposal are more restrictive than those for the Class B pathogen reduction standards and therefore govern.

EPA is including pathogen reduction requirements for sewage sludge disposed of monofills even though the Agency is not aware of any incident in which illnesses have been attributed to pathogens from monofills. A review of the literature (see Reference number 78) indicates that, potentially, pathogens could pose a problem if monofills were

located in sandy soils. This conclusion was based on field studies of the transport and fate of viruses from septic tanks. The results of these studies suggest that enteroviruses can travel substantial distances. In one study, researchers added a single dose of vaccine poliovirus type 1 (derived from cell culture or from stools of recently vaccinated infants) to several septic tank systems. In all cases, the researchers found the viruses persisted for several months and reached the ground water or traveled to nearby bodies of water. Little virus removal occurred during transport through the unsaturated zone. Although no studies have been conducted on sewage sludge placed in monofills to determine if the viruses exhibit similar survival and mobility in a sludge matrix, the high organic content in sludge is unlikely to retard the movement of viruses.

Bacterial movement through the soil surface appears to be more restricted than that of viruses, although rainfall can increase bacterial migration by increasing infiltration rates. However, if bacteria are able to penetrate to the saturated zone, they appear capable of being transmitted significant distances in sandy and gravel soils, although significant reductions may occur from the travel distance. EPA believes that the requirement for daily cover and for the collection of runoff should reduce potential bacteria problems at monofills.

EPA's Office of Research and Development has undertaken an assessment of the potential pathogenic risks from monofills (see Reference number 79) and intends to prepare a quantitative pathogen risk assessment methodology. When the results of the assessment are complete, EPA will re-evaluate the need for additional requirements beyond those in the Class B requirements. However, without additional data on the concentration of pathogens in the leachate or the decay rate of pathogens in the leachate, the Agency will assume that no further decay of pathogens occurs subsequent to the Class B reduction. Such an assumption may not be entirely valid. Therefore, the Agency is requesting laboratory or field data that may assist it in predicting the fate of pathogens from monofills.

As an alternative to the pathogen reduction requirements, particularly for monofills located in sandy soils, the Agency could require owners or operators to add liners. The Agency is soliciting comment on the alternative of requiring liners instead of imposing pathogen reduction standards.

Monitoring, Record Keeping, and Reports (§ 503.81 and § 503.84)

Owners and operators of monofills are to measure the concentration of the pollutants listed in Table 5 at the frequencies established for the design capacity of the treatment work and with the sampling and analysis procedures in § 503.81. Owners and operators must also monitor the sewage sludge to demonstrate compliance with the Class B pathogen reduction requirements, continuously monitor the methane gas at the property boundary, and monitor the volume and concentration of the pollutants in runoff. Section 503.81(b) lists the analytical methods for sampling and analyzing the sewage sludge for the constituents in Table 5 and for pathogenic bacteria, animal viruses, fecal coliform, fecal streptococci, protozoa and helminth ova.

EPA is proposing that owners and operators keep the records required in § 503.84 for a period of 10 years. Ten years is the proposed period of time that the final cover is to be maintained, methane gas monitored, and access to the monofill restricted. The records to be kept and the reports to be submitted ensure that owners and operators of monofills will comply with the monitoring and verification requirements of the rule. Owners and operators must certify that the monofill:

- Does not cause or contribute to the harm of threatened or endangered species or their habitat, does not restrict the flow of a base flood, does not reduce the temporary water storage capacity of a floodplain, and does not present a hazard to human health, wildlife, or land or water resources;
- Does not attract birds that present a hazard to aircraft if the monofill is located either within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft or 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft;
- Is designed to withstand stress created by the maximum ground motion if the monofill is located in a seismic zone;
- Is located 60 meters or more from a fault that has had displacement in Holocene time;
- Is located in areas that adequately support the structural components of the unit; and
- Is located outside the perimeter of wetland areas.

In addition, the monofill owner or operator must report the concentration of the pollutants in sewage sludge, level of pathogen reductions achieved, the record of the methane gas concentration in any structure within the monofill

boundary and at the property boundary, the volume of runoff treated and discharged, and the concentration of the pollutants in the discharge.

These monitoring, record keeping, and reports relate to key elements within Subpart D and were described throughout the discussion of the requirements for monofills.

Surface Disposal Sites (Subpart E)

Applicability (§ 503.40)

The requirements contained in this proposal apply to surface disposal sites receiving only sewage sludge. The requirements also apply to any person who disposes of sewage sludge on a sewage sludge disposal site.

Specialized Definitions (§ 503.41)

Surface Disposal Sites

There are a number of different ways to apply sewage sludge to the land for reuse or disposal. Sewage sludge applied to agricultural and non-agricultural land, and the distribution and marketing of sewage sludge, generally is done to use the nutrient and soil conditioning properties of the sewage sludge. Applying sewage sludge to dedicated, non-agricultural land, however, is an exception. This practice does not use the nutrient and soil conditioning properties for a beneficial use. Rather, it is a disposal method that uses the soil to bind the metals and uses soil microorganisms, sunlight, and oxidation to destroy the organic matter in the sludge. Disposing of sewage sludge in monofills is also a method of disposal that does not use the beneficial characteristics of the sewage sludge.

The Agency has identified another disposal method that, while similar to some disposal methods and treatment practices, such as surface impoundments, is not strictly covered by those terms. In this method of disposal, sewage sludge is placed on the surface of the land in "piles". The Agency is calling this method of disposal, sewage sludge surface disposal.

The Agency defines a surface disposal site as an area of land on which only sewage sludge is placed for a period of one year or longer. Surface disposal sites do not have a vegetative or other cover. The one year time period is used to differentiate surface disposal from treatment or storage. As explained elsewhere in the preamble, today's proposal only covers final use or disposal methods, not treatment processes or storage.

In 1984, when the Agency initiated the Part 503 rulemaking process, surface disposal sites were considered surface

impoundments that were used for treatment or interim storage, not use or disposal facilities. Subsequently, the Agency learned that some communities use surface impoundments for extended periods of time, suggesting that the practice is the community's method of disposal. When surface impoundments are used for the final disposal of sewage sludge, they are surface disposal sites and are subject to the CWA's requirements as a disposal method. The CWA requires the Agency to develop standards for all use or disposal methods that are adequate to protect human health and the environment from any adverse effect of each pollutant.

The Agency identified approximately 5,600 facilities that dispose of 476,500 dry metric tons of sewage sludge by "other" practices, some of which may include surface disposal sites to dispose of 200,000 dry metric tons of sewage sludge. The Agency believes that approximately 2,400 POTWs use surface disposal sites for the disposal of their sewage sludge.

Based on available information, the Agency believes that surface disposal sites generally are small, are located in rural areas on lands owned or controlled by local governments, and do not expose individuals to significant concentrations of pollutants. EPA is collecting additional information on the location, size, and the physical characteristics of surface disposal sites, as well as on the characteristics and quality of sewage sludge placed on, and the typical management practices associated with, surface disposal sites. This information will be used to evaluate the human health and environmental impacts of treatment works using surface disposal sites.

The Agency has initiated work to develop an exposure assessment model for surface disposal sites in much the same way it developed exposure assessment models for other methods of use and disposal. Where possible, the Agency will use existing equations to simulate the movement of pollutants from a surface disposal site into the air, ground water, and surface water. The Agency is soliciting suggestions on modifications that it should make to either the monofill or land application models to develop a surface disposal model.

After completing the exposure assessment model, the Agency will evaluate MEI and aggregate exposure from surface disposal sites. Information on the likely exposure of individuals and the aggregate effects of surface disposal sites, as well as comments on today's proposal, will be used in evaluating the

appropriateness of the standards for sewage sludge disposed of on such sites.

For the purpose of regulation, the Agency has tried to distinguish surface disposal from land application to dedicated non-agricultural land and from disposal in monofills. Despite the similarities, there are differences between surface disposal and dedicated non-agricultural land application. On a surface disposal site, no vegetative cover is established on the sewage sludge. However, on dedicated non-agricultural land, a vegetative cover is established.

By the same token, if a surface disposal site is surrounded by a containment wall or if the sewage sludge is placed in a natural topographic depression or a man-made excavation, it resembles a monofill. Again, however, there are differences. One of the main differences is that no daily or final cover is established over the sewage sludge on a surface disposal site. Under the same conditions, surface disposal sites may also resemble sewage sludge treatment facilities such as pits, ponds, and lagoons. The distinguishing feature, though, is that a surface disposal site is the ultimate method of disposal, rather than part of the wastewater or sewage sludge treatment processes.

The Agency is soliciting comment on whether it should distinguish surface disposal from dedicated non-agricultural land application and from disposal in monofills. Comment is also solicited on the use of a 1-year time period to distinguish surface disposal from treatment or storage. Some treatment practices, such as composting, may take as long as 50 weeks. The Agency considered and is soliciting comment on regulating surface disposal sites, dedicated non-agricultural land, and monofills in a similar manner without regard to current practice. This approach would force all current practices to conform to the same standards (i.e., cover, etc.) based on the characteristics of the disposal method, rather than on the anticipated human health and environmental effects of the practice.

The remaining definitions in § 503.41 of the rule are identical to the definitions in § 503.31 for monofills.

General Requirements (§ 503.42)

The requirements for surface disposal sites are similar to those for non-agricultural land, except for the vegetative cover, and similar to those for monofills, except for the daily cover, the determination of the class of ground water under the site, and a closure plan. The Agency is not requiring that owners or operators of surface disposal sites

have a vegetative or other cover on the sewage sludge because covers may not be necessary to protect human health and the environment.

The Agency is not requiring owners and operators to determine the class of ground water under their site because the pollutant limits for surface disposal sites are based on "current sludge quality" (i.e., the 98th-percentile pollutant concentration shown in the "40 City Study") and are not contingent on the class of ground water under the site, as they are for monofills.

The Agency is requesting public comment on requiring a closure plan for surface disposal sites and the requirements for the closure plan. For monofills, the Agency is requiring a final cover and, for 10 years, maintenance of the final cover, methane gas monitoring, and restrictions on public access. EPA requests opinions and information on the efficacy of these provisions, particularly since the Agency is not proposing a daily cover, and on the need for a closure plan when one is not required for dedicated non-agricultural land application.

EPA believes that the other general requirements for dedicated non-agricultural land and for monofills are applicable to surface disposal sites. Surface disposal sites should not threaten endangered species or their critical habitat, restrict the flow of a base flood, reduce the temporary water storage capacity of a floodplain, or present a hazard to human health, wildlife, or land or water resources due to a washout of the sewage sludge. In addition, if a surface disposal site is located near an airport, the sewage sludge disposed on the site should not pose a hazard to aircraft by attracting birds to the site.

EPA is proposing that sewage sludge surface disposal sites located in a seismic zone be designed to withstand the maximum ground level acceleration. The Agency further proposes that surface disposal sites be located 60 meters or more from a fault that has had displacement in Holocene time; located in areas where there is adequate support for the site; and located outside the perimeter of wetland areas. If surface disposal sites are located closer than 60 meters from a fault that has had displacement in Holocene time, located in unstable areas, or located in wetland areas, they would have to be closed within 1 year. These facilities must close within a year because Section 405(d)(2)(D) of the CWA requires compliance with the requirements of these rules within 1 year.

The Agency is also requiring that owners or operators collect the volume of water from the 24-hour, 25-year storm event that runs off a surface disposal site and that they discharge the water in accordance with an applicable NPDES permit. This requirement precludes sewage sludge from washing out of the surface disposal site and endangering human health and environment.

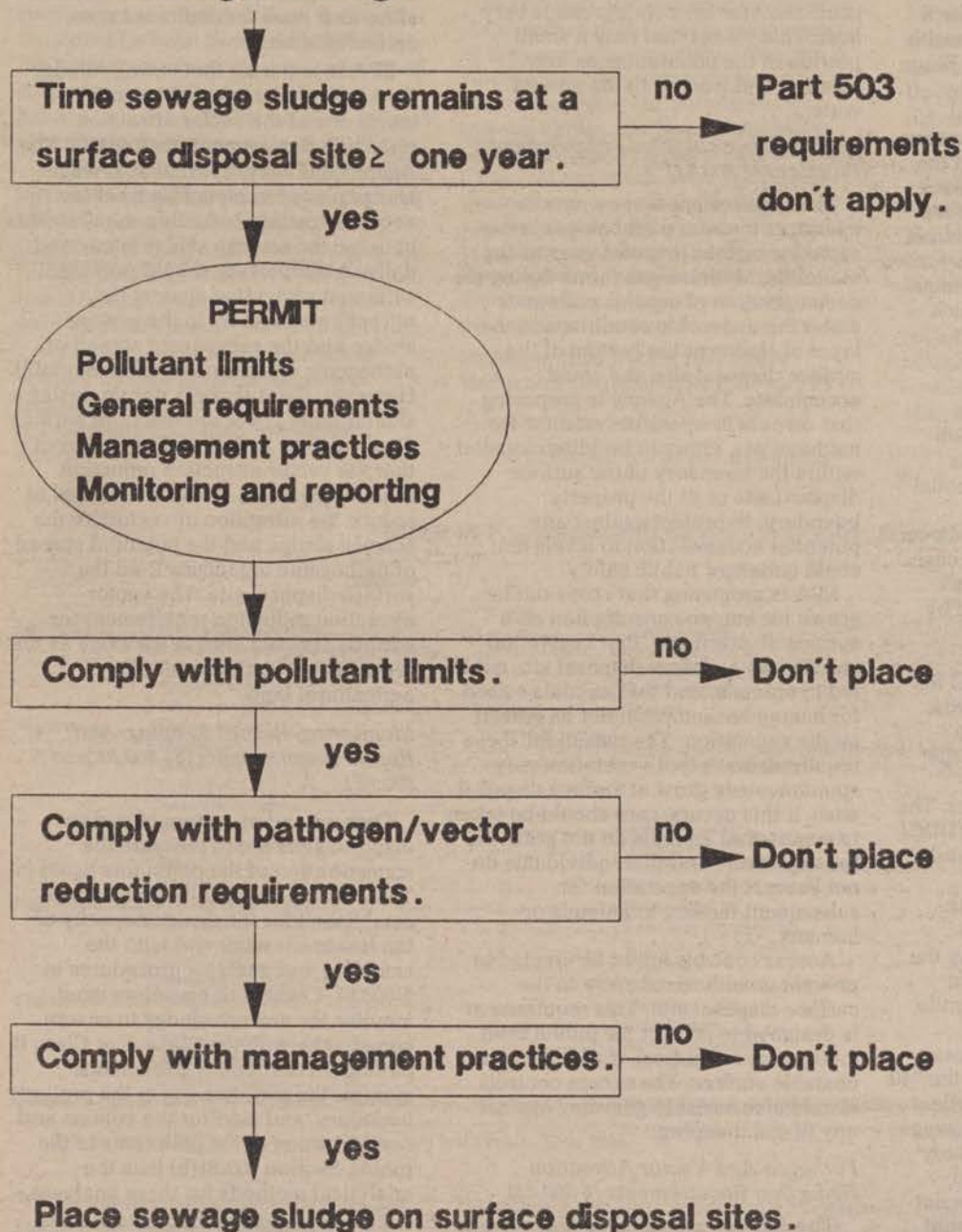
As proposed, the requirements for surface disposal sites apply to active sites still receiving sewage sludge. The Agency is seeking public comment on whether any or all of the requirements in § 503.42 should apply to sites that have not received sewage sludge for more than one year.

Surface Disposal Sites—Pollutant Limits (§ 503.43)

Figure IX-E.1 shows the key elements in determining whether or not sewage sludge may be disposed of on surface disposal sites.

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Figure IX-E. 1

SURFACE DISPOSAL SITES**Sewage Sludge**

The pollutant limits for sewage sludge placed on surface disposal sites are shown in Table 7 of the proposed rule. The Agency is proposing to use "current sludge quality" (i.e., the 98th-percentile pollutant concentrations) as the basis of the pollutant concentrations for surface disposal sites because the aggregate effects analysis is expected to show a low incidence of adverse human health effects from this disposal method. Since surface disposal sites are generally small and are located on municipal property away from population centers, few individuals are likely to ingest the pollutants from the sludge by drinking water from wells located near surface disposal sites or inhale the vapors from surface disposal sites. If these assumptions are incorrect, the Agency will propose an alternative approach based on the exposure assessment model that is currently under development.

The numerical limits for surface disposal sites correspond to the 98th-percentile pollutant concentrations unless the exposure assessment model calculates a higher pollutant concentration for monofills located over Class I ground water. In the latter case, the Agency is proposing the higher pollutant concentration calculated by the model. The higher pollutant concentrations are based on the stringent assumptions in the model for Class I ground water. In other words, the pollutant levels in the leachate cannot exceed the MCLs because the facility is located in a sandy soil immediately over the ground water. The pollutant concentrations for DDT/DDE/DDD (total), lindane, toxaphene, and benzo(a)pyrene are based on the monofill model rather than the 98th-percentile pollutant concentration.

There are two main reasons why the model calculates a higher pollutant concentration than the 98th-percentile concentration for these organic pollutants. The concentration values reported for organic pollutants in the "40 City Study" may not accurately reflect the actual concentrations in the sewage sludge. At the time the "40 City Study" data were collected, the analytical techniques used in the Study were not as sophisticated or precise as current techniques and they had higher limits of detection for organic pollutants. In effect, concentrations of organic pollutants were not detected. It is likely that the National Sewage Sludge Survey will find these compounds in sewage sludge. Even if these compounds are found, the models may still calculate a less stringent limit for DDT/DDE/DDD (total), lindane, and toxaphene because

these are high molecular-weight, chlorinated organic pollutants that have a low solubility in water and, therefore, do not leach to the ground water. The models also may calculate a less stringent concentration for benzo(a)pyrene than the 98th-percentile concentration because the partition coefficient for benzo(a)pyrene is very high. This means that only a small portion of the pollutant goes into solution and leaches to the ground water.

Surface Disposal Sites—Management Practices (§ 503.44)

The requirement that owners or operators monitor methane gas is the same for surface disposal sites as for monofills. Methane gas forms during the decomposition of organic pollutants under the anaerobic conditions in the layer of sludge at the bottom of the surface disposal site and could accumulate. The Agency is proposing that owners or operators monitor for methane gas, either in buildings located within the boundary of the surface disposal site or at the property boundary, to protect against any potential accumulation to levels that could endanger public safety.

EPA is proposing that crops not be grown for human consumption on a surface disposal site, that vegetation growing on a surface disposal site not be fed to animals, and that animals raised for human consumption not be grazed on the vegetation. The reason for these requirements is that vegetation may spontaneously grow at surface disposal sites. If this occurs, care should be taken to ensure that animals do not graze on the vegetation and that individuals do not harvest the vegetation for subsequent feeding to animals or humans.

Access controls are to be erected to prevent unauthorized entry to the surface disposal site. This requirement is designed to protect the public from methane gas and from walking on an unstable surface. The access controls should also assist in guarding against any illegal dumping.

Pathogen And Vector Attraction Reduction Requirements (§ 503.45)

The Agency is proposing that sewage sludge placed in surface disposal sites meet at least the Class B pathogen reduction requirements to reduce the spread of pathogenic organisms from the surface disposal site. The basis of this requirement is the study, described in the discussion of monofills, that shows the migration of pathogenic organisms from septic tanks located in sandy soils. As in the case of monofills, the Agency

is requesting comment on whether the pathogen reduction requirement for sewage sludge on surface disposal sites should be waived if a liner is installed. In addition, the Agency is requesting comment on whether it should allow Class C pathogen reduction for sewage sludge disposed of on surface disposal sites, as it does for dedicated non-agricultural lands.

EPA is requiring that sewage sludge disposed of on surface disposal sites meets one of the vector attraction reduction requirements in § 503.53. The Agency did not propose that sewage sludge placed in monofills meet the vector attraction reduction requirements because the sewage sludge is covered daily. A daily cover should provide sufficient protection against the attraction of vectors to the sewage sludge and the subsequent spread of pathogenic organisms from the monofill. However, the Agency is not proposing a similar daily cover provision for surface disposal sites and, therefore, believes that the vector attraction reduction requirements in § 503.53 are needed to reduce the attraction of vectors to the sewage sludge and the potential spread of pathogenic organisms from the surface disposal site. The vector attraction reduction requirement for surface disposal sites is the same as the requirement for dedicated non-agricultural land.

Monitoring, Record Keeping, And Report Requirements (§§ 503.81 and 503.85)

Owners and operators of surface disposal sites are to measure the concentration of the pollutants listed in Table 7 of the rule at the frequencies established for the design capacity of the treatment work and with the sampling and analysis procedures in § 503.81. Owners or operators must monitor the sewage sludge to ensure compliance with the Class A or Class B pathogen reduction requirements, monitor the methane gas at the property boundary, and monitor the volume and concentration of the pollutants in the runoff. Section 503.81(b) lists the analytical methods for these analyses.

EPA is proposing that the specified records be kept for 5 years, a requirement of the State program management regulation (40 CFR Part 501). Also under consideration is a record retention requirement of 3 years. The Agency is seeking public comment on the appropriate period of time treatment works should be required to retain the records for surface disposal sites.

The reports ensure that owners or operators of surface disposal sites will comply with the monitoring and verification requirements of the rule. In addition, owners or operators must certify that each surface disposal site:

- Does not cause or contribute to the harm of threatened or endangered species or their habitat, does not restrict the flow of a base flood, does not reduce the temporary water storage capacity of a flood plain, and does not present a hazard to human health, wildlife, or land or water resources;

- Does not attract birds that present a hazard to aircraft if the surface disposal site is located either within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft of 1,524 meters (5,000 feet) of an aircraft runway used only by piston engine-powered aircraft;

- Is designed to withstand stress created by the maximum recorded ground level acceleration if the surface disposal site is located in a seismic zone;

- Is located 60 meters or more from a fault that has had displacement in Holocene time;

- Is located in areas that adequately support the structural components of the surface disposal site; and

- Is located outside the perimeter of a wetland area.

In addition, the owner or operator of each surface disposal site must report, at the same frequency specified for sewage sludge monitoring, the concentration of the pollutants in sewage sludge, the level of pathogen reduction achieved, the vector attraction reduction approach used, the record of the methane gas concentration in any structure within the surface disposal site boundary or at the property boundary, the volume of runoff treated and discharged, and the concentration of the pollutants in the runoff.

Pathogen And Vector Attraction Reduction Requirements (Subpart F)

Applicability And Scope (§ 503.50)

The pathogen reduction and vector

attraction reduction requirements included in Subpart F pertain to sewage sludge that is applied to agricultural and non-agricultural land, distributed and marketed, or disposed of in monofills or on surface disposal sites. Pathogenic organisms in wastewater and sludge include bacteria, viruses, protozoa, and helminth ova and constitute one class of contaminants. These organisms can cause diseases, usually enteric diseases, through direct human contact with the organisms or through ingestion of an infected animal.

Pathogen bacteria and viruses occur in sewage. Based on a literature review, Table IX-F.1 lists those pathogenic organisms that (1) are associated with a high incidence of disease, (2) are found in high concentrations in sewage sludge, (3) exhibit resistance to environmental stresses, (4) can be detected with available methods, and (5) exhibit low infectious doses.

TABLE IX-F.1—PRIMARY PATHOGENS IN SEWAGE SLUDGE

Type	Organism	Disease
Bacteria	<i>Campylobacter jejuni</i>	Gastroenteritis.
	<i>Escherichia coli</i> (pathogenic strains)	Gastroenteritis.
	<i>Salmonella</i> sp.	Gastroenteritis, Enteric fever.
	<i>Shigella</i> sp.	Gastroenteritis.
	<i>Vibrio cholerae</i>	Cholera.
Viruses	Enteroviruses	
	Poliovirus	Gastroenteritis, meningitis, carditis central nervous system involvement, pneumonia
	Coxsackievirus	infectious hepatitis.
	Echovirus	
	Hepatitis A virus	
	Norwalk viruses	Gastroenteritis.
	Norwalk-like viruses	Gastroenteritis.
	Reovirus	Respiratory infections, gastroenteritis.
	Rotavirus	Gastroenteritis, infant diarrhea.
	<i>Necator americanus</i>	Hookworm.
Helminths	<i>Taenia</i> sp.	Taeniasis (tapeworm).
	<i>Toxocara</i> sp.	Visceral larva migrans.
	<i>Trichuris</i> sp.	Ascariasis.
	<i>Hymenolepis nana</i>	Taeniasis.
	<i>Toxoplasma gondii</i>	Toxoplasmosis.
Protozoans	<i>Balantidium coli</i>	Balantidiasis.
	<i>Entamoeba histolytica</i>	Amebic dysentery.
	<i>Gardia lamblia</i>	Giardiasis.
	<i>Cryptosporidium</i>	Gastroenteritis.
Fungi	<i>Aspergillus fumigatus</i>	Aspergillosis or respiratory infections.

Source: Technical Support Document: Pathogens and Vectors. EPA, 1988.

Wastewater treatment processes remove pathogenic organisms from wastewater, not so much by destroying them as by concentrating them in the residual sludge streams. Because sludge volume is much smaller than wastewater volume, concentrations of pathogens on a volume basis are much higher in the sludge than in the original wastewater. The increased pathogen content of sludge makes it essential that

the Agency require processing and other procedures that minimize exposure of humans and animals to infectious organisms in sludge.

Ideally, regulations designed to protect individuals from pathogenic organisms in sewage sludge take into consideration:

- The densities of specific pathogens of major public health significance contained in sewage sludge;

- The ability of specific wastewater and sludge treatment processes to reduce the concentrations of these pathogens;

- The survival or transport of pathogenic organisms in the environment; and

- The risk to humans ingesting a specific number of these pathogens.

However, research on the fate and pathogenicity of microorganisms in

sewage sludge is still under development. Therefore, the Agency has traditionally specified technology-based standards (i.e., processes that significantly reduce pathogens—PSRP—and processes that further reduce pathogens—PFRP). These treatment technologies are included in 40 CFR 257.3-6.

The Agency is gathering additional information on the survival and transport of pathogenic organisms in the environment and on the specific number of pathogenic organisms likely to cause an infection. This information will be used to develop a series of equations to simulate the movement of pathogenic organisms through the environment. These equations will be integrated into a model similar to the other exposure assessment models discussed in Part IV of the preamble. The model will (1) start with levels of pathogenic organisms usually seen in wastewater prior to treatment, (2) project the level of reduction attained by wastewater and sewage sludge treatment, and (3) calculate the movement, survival, and attenuation of the pathogenic organisms in the environment, as well as the risk of human disease.

In conjunction with the development of the model, the Agency is gathering information on the infectious dose of pathogenic organisms (i.e., the minimum number of bacteria, viruses, protozoa, or helminths necessary to cause an infectious dose in the host). In defining an infectious dose, the Agency will use a process similar to the way in which it establishes RfDs for non-carcinogenic pollutants. The numbers will likely be similar to an RfD (i.e., establishing a level such that the likelihood of developing an infectious case is very low). Once microbiological "human health criteria" are established for pathogenic organisms, the Agency will incorporate this information with data on survivability, transport, and climatic effects into a model to calculate the densities of pathogenic organisms in sewage sludge that can be applied to the land or disposed of in monofills or on surface disposal sites without infecting individuals.

Because more data are available on bacteria, the Agency anticipates modeling bacteria first, followed by viruses, protozoa, and helminth ova. Once the model and criteria are fully developed and have undergone review by the Agency's Science Advisory Board, the Agency will publish the model and, if necessary, propose revisions in the Part 503 requirements.

Until the Agency develops microbiological human health criteria that link specific numbers of pathogenic

organisms to an infectious dose, the Agency is basing today's proposal on the premise that pathogenic organisms must be below levels of detection or below specified levels of fecal coliforms and fecal streptococci/enterococci (indicator bacteria) to protect human health and the environment. To attain this standard, treatment works may use treatment processes alone (Class A, such as composting), or a combination of treatment processes and periods of time when access to and use of the land where sludge is applied are restricted to allow environmental exposure (sunlight and soil temperature) to kill the remaining pathogens (Class B and Class C). Less stringent treatment standards (Class B and Class C) are combined with more rigorous restrictions on access to the land and on growing and harvesting food and feed crops on sludge-amended soils. The combination of treatment standards and access and use restrictions should ensure that the densities of the remaining pathogenic organisms are sufficiently attenuated that the risk of human disease is negligible.

EPA is specifying reductions in pathogenic organisms and densities of indicator organisms that must be attained, rather than continuing to specify technologies that must be used, because of the difficulties in equating new processes to the documented processes (i.e., PSRP or PFRP). Without performance standards corresponding to a desired level of pathogen reduction or density of indicator organisms, manufacturers had difficulty in demonstrating that their technology was equivalent to the treatment process specified in 40 CFR 257.3-6. In 1985, the Agency established a Pathogen Equivalency Committee to review and assist the Agency in assigning new technologies to either PSRP or PFRP. However without performance standards, the Agency believes manufacturers still will encounter difficulties and be reluctant to invest in new technologies.

Today's performance standards are based on well-operated wastewater and sewage sludge treatment processes (see Reference number 78). Any process may be used for a particular class of pathogen reduction as long as the appropriate pathogenic organism reduction or density of indicator organisms is attained.

Another reason that the Agency is revising the requirements in 40 CFR 257.3-6 is to provide additional flexibility for small treatment works to meet the requirements in the rule. The two technologies specified in 40 CFR 257.3-6 (PSRP and PFRP) did not give

sufficient flexibility to small treatment plants with processes that are not equivalent to PSRP to meet the requirements by increasing the access and use restrictions, rather than investing in significantly more costly processes. Therefore, the Agency is adding a third class of pathogen reduction/indicator organism densities that is combined with more rigorous access and use restrictions to provide additional opportunities for small treatment works to attain the performance standard.

The Agency is also revising the 40 CFR 256.3-6 requirements because of the growing concern about applying septage to the land. In 1979, when the 40 CFR Part 257 requirements were published, septage was considered to have been treated to a level equivalent to PSRP. Therefore, septage could be placed on the land as though it had been treated by PSRP. In today's proposal, septage is defined as sewage sludge. Therefore, septage collected and applied to the land or disposed of in monofills or on surface disposal sites would have to be monitored and meet the requirements for the appropriate class of pathogen reduction in the same manner as would any other sewage sludge that is generated or treated. The Agency recognizes that this way may require that septage haulers have their septage processed prior to applying the septage to the land. However, the Agency is unsure about the extent and magnitude of any disruptions that today's approach may cause. Public comments are requested on the impact of the proposed rule on the use and disposal of septage.

The Agency also is revising the approach used in 40 CFR 257.3-6 to separate the pathogen reduction/indicator organism density requirements from the vector attraction reduction requirements. The Agency is proposing (1) five ways to demonstrate that vectors would no longer be attracted to sewage sludge or (2) that sewage sludge be injected below the surface of the land. Except for ensuring that the vector attraction reduction is concurrent with or follows the Class A pathogen reduction processes (to preclude explosive regrowth of the pathogens), the Agency sees no merit in linking a particular vector attraction reduction option to a particular pathogen reduction performance standard.

Specialized Definitions (§ 503.51)

Aerobic Digestion

Digestion by aerobic processes is commonly used to stabilize sewage sludge. Typically there is no attempt to

control temperature, so temperatures ordinarily range from 10 to 30 degrees Celsius, depending on the daily weather conditions. If energy is conserved (e.g., by minimizing air flow and covering the digester), temperatures can increase to the thermophilic range (50 to 60 degrees Celsius). Nominal residence times range from 10 to 40 days. Volatile solids reductions, which indicate a reduction in the ability of the sludge to create odors and attract vectors, is increased by operating at higher temperatures and for longer residence times.

The three types of aerobic digestion processes are conventional semi-batch digestion, conventional (mesophilic) continuous digestion, and autoheated (thermophilic) continuous digestion. In the semi-batch operation, solids are pumped directly from the clarifier into the continually aerated digester. When the digester is full, aeration continues for an additional 2 to 3 weeks. The conventional continuous operation closely resembles the activated sludge process with a flow-through aerobic digester followed by a clarifier-thickener. Many conventional aerobic digesters are operated in the ambient temperature ranges. In the autoheated processes, sludge from the clarifiers is usually thickened to provide a digester feed with greater than four percent solids. In these digesters, thermophilic conditions (50 to 60 degrees Celsius) result from the exothermal heat of substrate oxidation.

Anaerobic Digestion

Anaerobic digestion is the degradation of microbiological organic substance in the absence of oxygen. Primary or secondary sludge is digested in an air-tight reactor for varying periods of time depending on the temperature.

The three basic types of anaerobic digestion are low-rate digestion, high-rate digestion, and two-stage digestion. In low-rate digestion, the sludge is unmixed in the reactor and the processes of sludge thickening and liquid solid separation are carried out simultaneously. In high-rate digestion, the sludge in the reactor is mixed and heated to speed up microbial processing of the sludge. High-rate reactors are operated at either mesophilic (30 to 38 degrees Celsius) or thermophilic (50 to 60 degrees Celsius) temperatures. High-rate reactors have shorter detention times than do low-rate reactors (i.e., 30 to 60 days for low-rate digesters versus 10 to 20 days for high-rate digesters). In the two-stage process, a high-rate digester is linked to a second digester, generally unmixed. The second digester primarily serves as a thickener.

Density of Microorganisms

The density of microorganisms per unit mass of volatile suspended solids is the number of microorganisms divided by the mass of volatile suspended solids in the sewage sludge. The number of microorganisms may be colony-forming units or most probable number of bacteria, plaque-forming units of viruses, or the actual number, by count, of either protozoan cysts or helminth ova.

The Agency is defining the density of microorganisms in terms of volatile suspended solids because these organisms are associated with volatile suspended solids (i.e., organic material) in the sewage sludge. The Agency invites comment on this approach.

Specific Oxygen Uptake Rate

Specific oxygen uptake rate (SOUR) is the rate at which bacteria consume oxygen in a liquid sewage sludge that has been treated in an aerobic process (i.e., mass of oxygen consumed per unit time, per unit mass of sewage sludge solids). A high SOUR indicates there is a large and active bacteria mass in the sewage sludge and the sewage sludge is likely to putrefy rapidly. A low SOUR indicates that the bacteria in the sewage sludge have consumed available food sources and the sewage sludge will not putrefy rapidly. The SOUR standard of 1 milligram of oxygen per hour, per gram of sewage sludge solids or less is used as one of the indicators that the treatment has met the vector attraction reduction requirements.

The SOUR standard is only appropriate for sewage sludge or compost that has undergone aerobic digestion and has a high proportion of aerobic bacteria. Therefore, untreated, limed, and anaerobically digested sewage sludge are not eligible to use this standard.

Volatile Suspended Solids

Volatile suspended solids is that portion of the total solids in sewage sludge that is removed when the sewage sludge is burned at 550 degrees Celsius in the presence of excess air. Microbiological densities are measured in terms of volatile suspended solids in the sewage sludge because these microbes are associated with the volatile suspended fecal material.

Pathogen Reduction Requirements (§ 503.52)

Section 503.52 proposes three classes of pathogen reduction to achieve the objective of reducing pathogenic organisms below levels of detection. EPA developed the three classes or

levels of pathogen reduction (i.e., Class A, Class B, and Class C) to provide treatment works greater flexibility in reducing the risk of infection and disease from pathogens than was allowed in 40 CFR 257.3-6. Treatment works may meet the pathogen reduction requirement by treating the sewage sludge to the Class A performance standard. The requirement may also be met by treating the sewage sludge to a Class B or a Class C performance standard and by placing time restrictions on public access to the land where the sewage sludge is applied and placing time restrictions on growing and harvesting crops and grazing animals on that land. These access and use restrictions are not applicable to sewage sludge disposed of in monofills or on surface disposal sites because crops are not grown on monofills or surface disposal sites and because the access restrictions for these disposal practices are more stringent than the access restrictions for land application of sewage sludge.

Class A

Class A pathogen reduction is achieved by processing the sewage sludge. Generally, this will involve composting the sewage sludge or using other processes that increase the temperature of the sewage sludge to 50 to 60 degrees Celsius.

To achieve Class A reduction, the pathogenic bacteria, viruses, protozoa, and helminth ova in the sewage sludge must be reduced to below detectable limits. By requiring that bacteria, viruses (*Salmonella* sp.), protozoa, and helminth ova are all below levels of detection, the Agency believes that these organisms will not infect individuals or animals.

The proposed methods to be used in measuring each of these organisms are presented in § 503.81(b) and discussed later in the preamble. As part of that discussion the Agency is inviting comments on the methods.

An alternative requirement is presented in today's proposed rule for Class A pathogen reduction because of the difficulty in demonstrating that all four types of pathogens are below detectable limits. EPA is proposing that when the temperature of sewage sludge is raised (53 degrees Celsius for 5 days or 55 degrees Celsius for 3 days or 70 degrees Celsius for one-half hour) and the density of fecal coliforms and fecal streptococci (enterococci) per gram of volatile suspended solids are each equal to or less than 100, the Class A pathogenic reduction requirements are achieved.

Fecal coliforms and fecal streptococci are benign organisms present in fecal material. They are used as indicators of the presence of fecal material. If their densities are high, the risk of infectious levels of pathogenic organisms is also high. Agency data indicate that when coliform densities in processed sludge are low (100 per gram of volatile suspended solids or less), *Salmonella* are absent and when coliform densities are high, *Salmonella* are present (Reference number 78). Thermal processes are about as efficient in destroying pathogenic organisms as they are in destroying fecal indicators, but the fecal indicators are present in much higher densities. When the fecal indicators are reduced to very low values, the likelihood of pathogen survival is negligible. Research also shows that thermal processes must raise the temperature of the sludge to 53 degrees Celsius or above to ensure the destruction of helminth ova (*Ascaris* sp.) (Reference number 78). Other processes may reduce fecal indicator densities to low levels but may not reduce all of the pathogens in sewage sludge to acceptable levels. For example, ionizing radiation is more effective against bacteria than against viruses. For this reason, viruses may be present in the sewage sludge even though the fecal indicators are below the 100 gram level. Another example is chemical treatment of sewage sludge. Chemical treatment may reduce pathogenic bacteria and viruses, but may not reduce helminth ova because the ova are protected by a shell that may be impervious to chemicals. Therefore, measurement of fecal indicators may be used only when thermal processes raise the temperature of the sludge for the specified periods of time.

The Agency invites comments on applying the fecal indicator alternative only to processes that raise the temperature of the sewage sludge to at least 53 degrees Celsius and solicits data on the correlation of pathogens to fecal indicator organisms for other technologies. The Agency also requests comments on both the use of indicator organisms to measure pathogen reduction and on the use of the density of 100 per gram of volatile suspended solids value for fecal coliforms and fecal streptococci/enterococci. The Class A pathogen reduction must be completed prior to or must be concurrent with the processes that are used to meet the vector attraction reduction requirements (see § 503.52(a)(3)). The objective of this requirement is never to leave a sewage sludge that is required to meet Class A requirements nearly devoid of

vegetative bacteria unless there is something present that inhibits bacterial growth. The inhibiting factor may be dryness, presence of certain chemicals, or presence of vegetative bacteria. If the Class A process that reduces pathogens follows the process for reducing vector attraction (for example, pasteurization after anaerobic digestion), vegetative bacteria are destroyed. Subsequent contamination by pathogenic bacteria could result in explosive regrowth. If the situation were reversed, the presence of nonpathogenic bacteria that caused the digestion and reduced the value of the sludge as an energy source would severely limit potential for explosive regrowth. This does not apply to Class B and Class C pathogen reduction because competitive bacterial organisms that hinder regrowth are present in the sewage sludge.

Since the Class A pathogen requirements reduce pathogenic organisms to levels unlikely to cause an infectious dose, the Agency is not imposing restrictions on access to or use of the land for any period of time. Access is restricted for non-agricultural lands until a vegetative cover is established, but only to keep individuals from sitting in or tracking sewage sludge off the field. Sewage sludge that is distributed and marketed must meet Class A pathogen reduction requirements. It is optional for other methods of use or disposal.

Class B

To reduce pathogenic organisms to safe levels, Class B pathogen reduction requirements use a combination of treatment and time restrictions on access to and use of land to which the sewage sludge is applied. The level of pathogenic organism reduction or the density of indicator organisms is based on well-operated treatment works that use primary settling, followed by activated sludge treatment and anaerobic digestion. For treatment works to achieve the Class B pathogen reductions, they must either demonstrate that the treatment processes reduce the average density of pathogenic bacteria and of viruses per unit mass of volatile suspended solids in the sludge two orders of magnitude lower than those densities in the incoming wastewater or demonstrate that the densities of each of the fecal indicator organisms is 6 log₁₀ or less.

For example, if the influent to the treatment work shows that the average density of pathogenic bacteria per unit mass of volatile suspended solids is 1 million (10⁶) and that the average density of viruses per unit mass of volatile suspended solids is 10,000 (10⁴),

after treatment, the processed sludge must show pathogenic bacteria densities of 10,000 (10⁴) and virus densities of 100 (10²) per unit mass of volatile suspended solids.

No requirements for reduction in protozoan cysts or helminth eggs are specified. Protozoan cysts are believed to be greatly reduced in numbers by sludge processing and even if they were not greatly reduced, their numbers are reduced through environmental exposure on land. Helminth eggs are not significantly reduced by processing and their densities decline slowly in the environment. The long period when growing food crops with the harvested portion below the ground is not allowed (5 years or 18 months if no viable helminth ova are found) and the 12-month period during which public access to the fields is restricted protect the public against possible ingestion of viable infective helminth eggs.

The test data that the Agency has on the reductions in pathogenic organisms are based on relative log₁₀ reductions. The Agency found that absolute numbers varied significantly between facilities depending on the influent to the treatment work, the method used to measure the pathogenic organisms, and the investigator conducting the measurements. However, for fecal coliforms and fecal streptococci, the Agency does have data indicating that when treatment of the influent includes a well-operated physical or biological process and these processes are combined with alkali additions, chlorine additions, or storage of the sewage sludge, the log density of fecal coliforms and fecal streptococci each are 6.0 or less. Reductions in fecal indicators correlate well with reductions in pathogenic bacteria and viruses when a combination of processes is used to treat the influent and the sewage sludge. Current data also indicate that the logarithms of the densities of fecal coliforms and fecal streptococci in the influent to the treatment works do not vary significantly for different wastewater. For these reasons, the Agency believes an absolute value for fecal indicators can be used to indicate that the Class B pathogen reduction has been achieved. The Agency invites comments on this alternative requirement and on limiting the applicability of the requirement to the use of certain technologies. The Agency also solicits data on the correlation of fecal coliforms and fecal streptococci to pathogenic bacteria and viruses. The access and use restrictions discussed later in this section of the preamble also

apply when this alternative requirement is achieved.

EPA is proposing to state the standard in terms of the difference in log densities between the influent wastewater and the processed sludge. The Agency is using this approach to credit the wastewater treatment processes as part of the processes to reduce pathogenic organisms. The requirements in 40 CFR 257.3-6 only recognized processing of the sludge. However, some wastewater treatment processes are more effective than others in reducing pathogenic densities. Therefore, since the overall objective is to reduce the level of pathogenic organisms in the final sludge, the Agency now believes that treatment works using those wastewater treatment processes that are more effective in reducing pathogenic organisms should be credited for doing so.

Access And Use Restrictions—Class B

When the Class B treatment standards are met, some pathogenic bacteria and viruses remain. In addition, if protozoa and helminth ova are in the influent, they are likely to be in the sewage sludge. Therefore, as part of the Class B pathogen reduction requirements, EPA is imposing access and use restrictions to limit exposure to the sewage sludge and provide time for attenuation of the pathogenic organisms. The period of time EPA is proposing to limit access to and use of the land should be sufficient to minimize the risk of disease when individuals, plants, and animals come in contact with the sewage sludge.

The use restrictions for Class B reduction apply to agricultural land where sewage sludge is applied. The public access restrictions apply to both agricultural and non-agricultural land. The access restrictions do not apply to monofills and surface disposal sites because the access restrictions for these disposal methods are more rigorous. The access restrictions for monofills and surface disposal sites are designed to preclude public exposure to potentially toxic pollutants in the sewage sludge.

The first two Class B use restrictions are for food crops. Food crops that have harvested parts above the ground touching the sludge-soil mixture cannot be grown for 18 months after application of the sewage sludge. If the harvested parts are above the ground and do not touch the sewage sludge, there is no restriction on growing the crop. The 18-month period provides time for the sun's radiant energy and desiccation to inactivate helminth eggs that are the most resistant to environmental stress.

Food crops with harvested parts below the ground cannot be grown for a period of 5 years unless a demonstration

is made that there are no viable helminth ova in the soil. Research results indicate that helminth ova survive in soils for as long as 4 years after application of the sewage sludge to the land, even though their survival rate is expected to be low (Reference number 79). At least 18 months is sufficient, however, to allow time for the inactivation of most of the helminth ova on the soil surface.

The third requirement is that feed crops may not be harvested for a period of 30 days after application of the sewage sludge. The restriction protects humans and animals from contact with the harvested product. The 30-day period allows wind action and rainfall to reduce the amount of sewage sludge that adheres to the crops. Thirty States have a similar restriction.

The fourth requirement restricts the grazing of animals on agricultural land for 30 days after application of the sewage sludge. This prevents animals from physically removing the sewage sludge from the fields where the sewage sludge was applied. The restriction also reduces the potential for infection of animals from bacterial diseases, such as salmonellosis, that can be transmitted to humans. Thirty days should provide sufficient time for rain and wind to remove most of the sludge from the plants and for the adverse environmental factors to cause pathogen die-off.

The Class B access restriction further prevents access by the uninformed public to the land where the sewage sludge is applied for 12 consecutive months. Agricultural workers and personnel who apply the sewage sludge to agricultural and non-agricultural land are exempt from the restriction. Twelve months is fully protective against viruses and bacteria and will provide protection against helminths. The time restriction for public access is less than the time restriction for growing crops because the risk of infection is less from walking or sitting on the land than it is from ingesting food crops grown on the sludge-amended soil.

The time periods that are in today's proposal are based on research results and on experience discussed in the "Technical Support Document: Pathogens/Vectors" (Reference number 78). The Agency invites comments on these time periods and on the types of activities that are restricted.

Class C

Class C pathogen reduction requirements and the densities of indicator organisms are based on the performance of treatment works that have aerobic treatment processes with

long detention times and no primary settling processes. The Class C reductions in pathogenic organisms or densities of fecal indicator organisms are slightly less stringent than the Class B requirements. Therefore, the Class C access and use restrictions are more stringent than the Class B restrictions.

Class C pathogen reduction is achieved when processes reduce the density of bacteria and animal viruses per unit of volatile suspended solids in the sludge 1.5 orders of magnitude lower than those densities in the incoming wastewater. The Agency invites comment on the 1.5 logarithmic reduction for Class C.

Treatment works may also demonstrate that the density of fecal coliforms in sewage sludge does not exceed 6.3 log₁₀ or less per gram of volatile suspended solids and the density of fecal streptococci (enterococci) in the sewage sludge does not exceed 6.7 log₁₀ or less per gram of volatile suspended solids prior to disposal. The Agency also invites comments on these values.

Access and Use Restrictions—Class C

The further reduction in pathogenic bacteria and animal viruses and the reduction in protozoa cyst and helminth ova for Class C pathogen reduction are achieved through the access and use restrictions. These restrictions allow the protozoa and helminth ova to be reduced by natural processes. Crops, animals, and humans are protected by the access and use restrictions on the land where the sewage sludge is applied.

The first two Class C use restrictions are the same as the first two Class B use restrictions. They restrict growing food crops with harvested parts that are above the ground and that touch the sludge-soil mixture for a period of 18 months. Restrictions are also placed on growing crops with harvested parts below the ground for a period of 5 years, unless a demonstration is made to show that helminth ova are not present in the soil. If that demonstration is made, food crops with harvested parts below ground may be grown after 18 months.

The third and fourth requirements restrict the harvesting of feed crops for 60 days and the grazing of animals for 60 days. Both of these requirements are 30 days longer than the Class B restriction. This additional time is being imposed because of the less stringent logarithmic reduction in pathogenic organisms and the less stringent pathogenic densities for indicator organisms.

The access restriction for Class C pathogen reduction restricts access to

all personnel, except for those applying the sewage sludge, for 12 months. The Class B access requirement only restricts access to the public for 12 months. The Class C access requirement is more stringent because of the less stringent logarithmic reduction in pathogenic organisms for Class C requirements. The Agency requests comment on this approach.

Vector Attraction Reduction (§ 503.53)

Vectors such as rodents, flies, and mosquitoes play an important role in the spread of pathogenic diseases. To break that link, treatment works are to eliminate the characteristics of sewage sludge that attract vectors. Untreated sewage sludge is a high energy food source that can nourish insect larvae and provide food for vectors. Putrescible organic compounds, including organic amines such as putrescine and cadaverine and short-chained fatty acids such as butyric acid, give off odors that attract vectors. The characteristics of sewage sludge that attract vectors can be reduced or eliminated by composting or digesting the sewage sludge, by raising the pH of the sewage sludge, by reducing the moisture content of the sewage sludge, or by injecting the sewage sludge below the surface of the ground. EPA is proposing five indicators which show that the sewage sludge has been processed sufficiently so as not to attract vectors. In lieu of meeting these indicators, owners or operators of treatment works may inject the sewage sludge below the surface of the ground to meet the vector attraction reduction requirements (unless the sewage sludge is distributed and marketed). When sewage sludge is distributed and marketed, injection below the soil surface cannot be used to comply with the vector attraction reduction requirement because there is no control over the end user of the distributed and marketed product. In addition, sewage sludge is generally liquid when it is injected below the soil surface, but distributed and marketed sewage sludge is generally dried when it is either given away or sold.

The vector attraction reduction requirements may be met by reducing the volatile solids in the processed sewage sludge. The volatile solids of the processed sludge must be 38 percent lower than the volatile solids in the influent. Experience over the last 9 years indicates that if the volatile solids content of sewage sludge has been reduced by 38 percent, sewage sludge does not attract vectors (see Reference number 78). Volatile solids reduction is calculated by a volatile solids balance of the digester.

An alternative to the 38 percent volatile solids reduction is proposed because the Agency is aware of other measures that can be used to show a reduction in volatile solids. In many treatment plants, sewage sludge is returned after treatment to the aerator for more treatment or to the inlet of the digester to improve the fluidity of the incoming sludge. The sludge entering the digester has already been partially digested so it is extremely difficult to achieve an additional 38 percent volatile solids reduction by digestion. Available data indicate that when digestion occurs at mesophilic temperatures (30 to 38 degrees Celsius), the reduction in vector attraction of the sewage sludge is achieved if less than a 15 percent volatile solids reduction occurs in 40 additional days of batch digestion. The "ability to digest further" appears to be the best indicator of an index of the potential for the sewage sludge to putrefy further. This approach would not be a viable approach if an immediate evaluation of a sludge is required. The Agency invites comment on this approach.

Another way vector attraction reduction can be achieved is to reduce SOUR of the sewage sludge to 1 milligram of oxygen per hour, per gram of sewage sludge solids or less. This requirement only applies to sewage sludge treated in aerobic processes. If a sludge has been treated aerobically to the point where the biological organisms present are consuming very little oxygen, the value of the sludge as a food source for microorganisms is very low and thus the sewage sludge does not putrefy or attract vectors. The Agency also invites comments on the use of SOUR to demonstrate vector attraction reduction of a sludge or a composted product and on the 1 milligram value in today's proposal.

Vector attraction reduction may also be met by adding alkali to raise the pH of the sewage sludge to 12 or above and, without the further addition of alkali, to remain at 12 or above for two hours and then to remain at 11.5 or above for an additional 22 hours. When the pH of the sewage sludge is raised to 12 or above, the bacterial activity is greatly diminished. When the pH of the sewage sludge drops below 10.5, bacterial regrowth from spore-forming bacteria commences and the sewage sludge begins to putrefy. The requirement that no additional alkali be added after the initial increment assures the presence of sufficient excess alkali to prevent pH from falling below 10.5 for the several days needed to apply the sludge to the land. The pH values and time periods in

the proposed rule are based on research results and experiences (Reference number 78). The Agency invites comments on the pH values and time periods and solicits data on alkali addition to sewage sludge and the time the pH of a sewage sludge has to be maintained at a certain pH value.

Another way to achieve vector attraction reduction is to dry the sewage sludge to achieve a 75 percent solids content of the sludge. Dry sewage sludge greatly diminishes the bacterial activity and, therefore, will not produce odors and will not putrefy. The 75 percent solids value must be complied with prior to mixing the sewage sludge with other materials. The Agency invites comments on the 75 percent solids requirement and solicits data on the reduction of vegetative bacteria in sewage sludge that has a lower percent solids content. While the Agency believes that the 75-percent value is adequate, data on a wide variety of sludge are solicited, particularly on the potential spontaneous combustion of sewage sludge with a solids content between 60 and 80 percent.

The final way vector attraction reduction can be achieved is to inject the sewage sludge below the soil surface. The ground absorbs the moisture in the sewage sludge and that, combined with the cover over the sewage sludge, reduces the vector attraction of the sewage sludge.

When the vector attraction reduction for a Class A sewage sludge is achieved by injection below the soil surface, there is a concern that bacterial regrowth may occur in the sewage sludge-soil mixture. Good management practices could reduce, but hardly eliminated, all sources of contamination. Research results and experience indicate that if the fecal coliforms and fecal streptococci of the sewage sludge do not exceed 1000 (3 log₁₀) per gram of volatile suspended solids at the time the sewage sludge is injected, it is likely that any bacteria introduced by contamination of the sewage sludge would have grown to densities that could threaten human health (Reference number 78). For this reason, § 503.52(a)(4) requires that if the sewage meets Class A pathogen reduction requirements and is to be injected below the soil surface for vector attraction reduction, owners and operations would have to monitor the densities of fecal coliforms and fecal streptococci to ensure that the densities do not exceed 1000 (3 log₁₀) per gram of volatile suspended solids at the time of injection.

As an alternative, the Agency considered specifying that the sewage

sludge would have to be injected into the ground within a specified period of time after processing. However, without knowing the specific circumstances under which the sewage sludge would be handled or distributed, EPA could not discern an appropriate length of time between processing and injection. Therefore, the Agency felt that it was more reasonable to look for evidence of regrowth. Public comment is requested on the proposal to monitor the sludge prior to injection and the alternative of specifying a period of time within which injection would have to occur.

Sampling Protocols And Analytical Methods (§ 503.81)

Sections 503.81(b) (3) through (11) lists the proposed protocols for sampling and analyzing sewage sludge for pathogenic organisms, fecal indicator organisms, volatile solids, percent volatile solids reduction, and SOUR. The Agency is interested in other methods that should be considered, particularly for pathogenic organisms because standard methods are available only for a few microorganisms.

Although many of the microbiological methods were originally developed for water, with proper sample processing, they are also applicable to sewage sludge. Part 908 of "Standard Methods for the Examination of Water and Wastewater" (16th edition, 1985) discusses the handling of mud, sediments, and sludge.

In addition to Part 917 "Standard Methods for the Examination of Water and Wastewater" for measuring the density of protozoa and helminth ova, EPA is proposing the use of Fox, J. P. R. Fitzgerald, and C. Lue-Hing, "Sewage Organisms: A Color Atlas". This book presents and discusses several types of media, as well as techniques for measuring protozoa and helminth ova. Neither technique is a standard method. However, the methods presented in the book, although not subjected to rigorous

statistical analytical comparisons, were developed for, and were extensively tested on, sludge and soils. Some of the methods are appropriate for particular types of helminth ova and some are not. Before selecting a method, the Agency notes that the introductory materials must be carefully reviewed to assure the appropriate method is used.

Incineration (Subpart G)

Applicability (§ 503.60)

The requirements in Subpart G will apply to those facilities that fire waste streams consisting only of sewage sludge. As previously discussed, this excludes four facilities that currently fire waste streams consisting of between three and nine percent sewage sludge, on a dry weight basis.

The standards proposed in Subpart G do not apply to sewage sludge incinerators that fire sewage sludge containing 50 ppm or more of PCBs, on a dry weight basis. Owners or operators whose incinerators fire sewage sludge containing 50 ppm or more of PCBs, on a dry weight basis, must comply with the requirements in 40 CFR 761.70. In addition, owners or operators of facilities firing sewage sludge that has been determined to be hazardous must comply with the requirements in 40 CFR 264.34.

Specialized Definitions (§ 503.61)

Air Pollution Control System

Air pollution control systems include one or more processes used to treat the air emissions from a sewage sludge incinerator. These systems use a variety of wet and dry devices. For example, sewage sludge incinerators either are or could be fitted with wet and dry cyclones, low and high pressure drop venturi scrubbers, scrubbing towers, impingement scrubbers, wet and dry electrostatic precipitators (ESPs), and fabric filters. Incinerators may also be fitted with after-burners, dry lime scrubbers, and lime spray dryers.

Control Efficiency

Control efficiency refers to the effectiveness of an incinerator and its air pollution control system in preventing the release of metal to the atmosphere. Control efficiency is determined as follows:

$$CE_i = \frac{\text{Mass}_i \text{ in} - \text{Mass}_i \text{ out}}{\text{Mass}_i \text{ in}}$$

Where:

CE_i = Control efficiency for metal i (decimal fraction).

$\text{Mass}_i \text{ in}$ = Mass of metal i in the sewage sludge fed to the incinerator, in grams per hour.

$\text{Mass}_i \text{ out}$ = Mass of metal i in the emissions of the incinerator measured after the air pollution control system, in grams per hour.

The combined metal control efficiencies of the incinerator and the air pollution control system are a key variable in calculating numerical limits for metals. In Table 10 of the proposed rule, EPA lists the control efficiencies to be used in calculating numeric limits for arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel. Except for beryllium and mercury, the metal control efficiencies listed in Table 10 represent the lowest tenth percentile metal control efficiencies of sewage sludge incinerators in EPA's data base. The metal control efficiencies for beryllium and mercury are based on the assumptions used in developing the National Emission Standards for Hazardous Pollutants (NESHAPs) for these pollutants. For other metals, EPA's data base includes information reported in the literature from 1972 to 1985 and data from four incinerator tests conducted by the Agency in 1987. Table IX-G.1 summarizes EPA's sewage sludge metal emission data base and lists the 10th-percentile control efficiency on which the Agency set the values in Table 10.

TABLE IX-G.1—SUMMARY OF CONTROL EFFICIENCY DATA FOR METALS

Contaminant	Number of incinerators tested	Minimum	Mean	Maximum	10th percentile	Regulatory value
Arsenic.....	7	93.90	98.62	100.00	95.52	96
Cadmium.....	24	40.25	88.54	99.98	65.15	65
Chromium.....	23	88.92	99.16	100.00	96.12	96
Lead.....	24	34.22	92.24	99.67	66.73	67
Nickel.....	19	89.15	98.68	100.00	95.00	95

The owner or operator of a facility may use either the control efficiencies listed in Table 10 or may conduct a

performance test of the facility to calculate the efficiency with which the incinerators and air pollution control

systems control the emissions of one or more of the metals listed in this proposal. The emission control tests are

to be conducted in accordance with EPA guidance. EPA is developing guidance for emission control tests specific to sewage sludge incinerators. This guidance will be available for public review and comment prior to the promulgation of the rule.

Dispersion Factor

A dispersion factor is a derived numerical value that relates the maximum allowable emission rate of a pollutant from a sewage sludge incinerator stack to a maximum allowable increase in the ground level ambient air concentration for that pollutant at a specified distance from the incinerator. EPA developed the dispersion factors in Table 9 of the proposed rule using the ISCLT air model. The dispersion factors were developed using a number of conservative factors including the meteorology of Atlanta, Georgia, and low gas exit temperatures (38 degrees Celsius, 100 degrees Fahrenheit). The ISCLT model accounts for significant atmospheric downwash from short incinerator stacks. A full discussion of the derivation of the dispersion factors is included in the "Technical Support Document for Incineration" (Reference number 56).

The owner or operator would use the appropriate dispersion factor based on the height of the facility's stacks. The rule also provides that owners and operators may calculate a dispersion factor on a case-by-case basis for their facilities using the "Guidelines on Air Quality Models" (Reference number 44).

Maximum Combustion Temperature

The maximum combustion temperature occurs in the combustion zone of the sewage sludge incinerator. In multiple hearth and electric incinerators, the combustion zone is in the middle hearths. In a fluidized bed incinerator, the maximum combustion temperature usually occurs in the free board space above the fluidized bed. The proposal specifies that for incinerators not tested for case-by-case metal control efficiencies, the maximum combustion temperature must not exceed 898 degrees Celsius, 1650 degrees Fahrenheit to avoid excessive metal emissions. For incinerators which are tested for case-by-case metal control efficiencies, the maximum combustion temperature will be based on the results of the test.

Risk Specific Concentration

The risk specific concentration is the maximum allowable annual incremental increase that may occur in the ground level ambient air for a pollutant when sewage sludge is incinerated. This concentration is the human health criterion upon which the numerical limit is based. The risk specific concentrations are derived from the cancer inhalation potency values. Risk specific concentrations are listed in Table 8 of the proposed rule.

No risk specific concentrations were developed for mercury or beryllium because the numerical limits for these pollutants are based on their NESHAPs. Therefore, the NESHAP values, expressed as an emission rate (grams per 24 hours) are used to develop numerical limits for mercury and beryllium. Equations are provided in the

rule to convert the NESHAP emission rate to a pollutant concentration that would be incorporated into a facility's permit. Similarly, the numerical limit for lead is based on the National Ambient Air Quality Standard (NAAQS) value and equations are used to convert the NAAQS value to a pollutant concentration.

The Agency derived the risk specific concentrations (RSC) using the cancer potency values (Q_1^*) with the following equation:

$$RSC = \frac{RL \times BW \times 1,000}{Q_1^* \times I_a}$$

Where:

RSC = Risk specific concentration, in micrograms per cubic meter.

RL = Risk level expressed as a negative exponent of 10.

BW = Body weight, in kilograms.

1,000 = Factor to convert milligrams to micrograms.

Q_1^* = Cancer potency expressed as milligrams per kilogram of body weight per day⁻¹.

I_a = Inhalation rate expressed in cubic meters per day.

In establishing a risk specific concentration, EPA used the following values in the equation:

RL = 1×10^{-6} , or one chance in 100,000 of developing cancer.

BW = 70 kilograms, which is the standard body weight of an adult male.

I_a = 20 cubic meters, which is the standard inhalation rate of an adult male.

Q_1^* = Potency value for each pollutant.

For example, the derivation of the risk specific concentration for arsenic is as follows:

$$RSC \text{ (Arsenic)} = \frac{(1 \times 10^{-6}) \times (70 \text{ kg}) \times (1,000)}{(15.0 \text{ [mg/kg/day]}^{-1}) \times (20 \text{ m}^3/\text{day})}$$

$$RSC \text{ (Arsenic)} = 0.0023 \text{ } \mu\text{g}/\text{m}^3$$

In deriving the risk specific concentrations for chromium, and nickel, and in using the NAAQS for lead, EPA made critical assumptions that are discussed below.

1. *Chromium.* In deriving a risk specific concentration for chromium (0.085 $\mu\text{g}/\text{m}^3$), the Agency assumed that one percent of the total chromium emission is in the form of hexavalent chromium (Cr^{+6}). Chromium can be emitted in either the highly-carcinogenic, hexavalent state or in the relatively non-toxic trivalent state (Cr^{+3}). Trivalent chromium compounds have not been shown to be carcinogenic. Toxic levels

of trivalent chromium are prevalent only at concentrations higher than those normally found in sewage sludge.

Hexavalent chromium, representing the more oxidized state of chromium, would be expected to be in the emissions when sewage sludge containing chromium compounds is incinerated. However, some investigators speculate that most of the chromium is likely to be emitted in the trivalent state because the hexavalent state of chromium is highly reactive and is likely to re-form into trivalent chromium.

Japanese laboratory and EPA-sponsored research, reported in the literature, have shown a correlation

between the amount of hexavalent chromium formed in the ash from the incineration of sewage sludge and the degree of lime treatment of sludge before incineration. As the quantity of lime added to the sludge was increased, the quantity of hexavalent chromium formation in the ash increased. The increased level of hexavalent chromium formation in the ash would likely be reflected in increased hexavalent chromium concentration in air emissions (Reference numbers 23 and 12).

EPA attempted to determine the ratio of hexavalent chromium to total chromium in the emissions of sewage sludge incinerators. To date, only two sewage sludge incinerators have been

tested successfully. The two results were quite variable, ranging from a level below the detection limits of hexavalent chromium (at 10 ppm Cr^{+6} to total chromium) to about 13 percent hexavalent chromium to total chromium (Reference numbers 47 and 39).

In several instances the Agency encountered problems with the hexavalent stack testing method. Recovery problems have been encountered in the extraction procedure used to remove the chromium from the collected particulate matter. It is suspected that certain organic and metal compounds emitted from combustion sources and present in the particulate catch could be reducing the hexavalent chromium to the trivalent form. This would result in a significant under-estimation of the actual hexavalent amount in the stack emissions.

EPA is currently investigating procedures to improve the recovery of hexavalent chromium in stack emission tests. At this time, the Agency is close to completion of a new ion chromatographic method for hexavalent chromium. This new method is expected to be available for use in stack emission testing in 1989.

Based on the limited hexavalent chromium data from actual emissions tests, EPA is proposing to assume that one percent of the total chromium emitted is hexavalent chromium. The Agency derived one percent by calculating the geometric mean of the two results, 10 ppm and 13 percent. The geometric mean is 0.11 percent hexavalent chromium to total chromium. The mean value was then multiplied by a safety factor of 10 to derive the one percent assumption today's proposal.

EPA plans further tests of sewage sludge incinerator emissions using improved sampling and analysis methods for hexavalent chromium. These additional tests should provide more insight into the ratio of hexavalent chromium to total chromium in the emissions of sewage sludge incinerators.

2. Nickel. Nickel emissions present a problem similar to chromium. Nickel can potentially be emitted from combustion sources in several different forms. Nickel subsulfide has been identified as the most carcinogenic form of nickel. Because EPA currently has no data on the chemical form of nickel emissions from sewage sludge incinerators, the Agency assumed that all nickel emitted is in the most carcinogenic form, nickel subsulfide. EPA has initiated studies on the speciation of nickel emissions from combustion sources to evaluate their health effects. Until these studies demonstrate otherwise, the Agency believes the appropriate approach is to

assume that all nickel emitted is in the form of nickel subsulfide.

EPA requests comments on the assumptions used in deriving the risk specific concentrations for chromium and nickel. The Agency also requests submission of data on the emissions of chromium and nickel from sewage sludge incinerators as part of comments on today's proposal to assist in evaluating its proposal.

3. Lead. EPA is proposing to limit lead emissions from sewage sludge incinerators so that the ground level concentration of lead does not exceed 25 percent of the NAAQS for lead. The NAAQS for lead is 1.5 micrograms per cubic meter maximum arithmetic mean averaged over a calendar quarter (see 40 CFR 50.12).

In deriving a ground level concentration for lead, the Agency evaluated the following two alternatives: 10 percent of the NAAQS, the percent used in the forthcoming proposed revisions to the Hazardous Waste Incinerator regulation; and 25 percent of the NAAQS. States allocate a percentage of the NAAQS to various sources of lead emissions in non-attainment areas through State Implementation Plans (SIPs). Up to now, States have not included limits for sewage sludge incinerators in their SIPs, leading the Agency to believe that States do not consider sewage sludge incinerators to be significant sources of lead emissions. EPA is soliciting comments on this assumption.

EPA is proposing to use 25 percent of the NAAQS as an initial step in regulating lead from sewage sludge incinerators. Based on available information, limiting lead emissions from sewage sludge incinerators to 25 percent of the NAAQS ensures that the increase in ground level ambient concentration of lead would not exceed the current lead NAAQS.

The Agency is soliciting comments on limiting emissions to 10 percent of the NAAQS. Ten percent would further limit lead exposure. The Agency's goal is to minimize lead exposure from all sources due to the significant biological changes across a broad range of exposures to lead (down to very low levels). Keeping the contribution of sewage sludge incinerators to ambient air lead levels to 10 percent of the NAAQS level (i.e., 0.15 $\mu\text{g}/\text{m}^3$) would be consistent with this goal. Allowing sewage sludge incinerators alone to contribute potentially up to 25 percent of the NAAQS may be excessive since allowing that increment could allow ambient lead levels in some areas to rise substantially from the present average background level of 2.0 $\mu\text{g}/\text{m}^3$. States

may wish to further limit the emission of lead from sewage sludge incinerators if it is warranted in non-attainment areas.

The 1978 NAAQS for lead was designed to ensure that 99.5 percent of the population has blood lead levels below 30 micrograms per deciliter ($\mu\text{g}/\text{dl}$), the level then judged to provide an adequate margin of safety from adverse health effects. The Agency now has data indicating that much lower blood lead levels are associated with a variety of toxic effects in men, women, and, particularly, in the very young. EPA is currently reviewing the current NAAQS for lead and will incorporate this new information. Until a new NAAQS is promulgated for lead, the current NAAQS will be the basis of the numerical limit when sewage sludge is incinerated. When EPA revises the current NAAQS of 1.5 $\mu\text{g}/\text{m}^3$, the Agency also will revise the numerical limit for lead from sewage sludge incineration.

Sewage Sludge Feed Rate

The feed rate is either the average amount of all the sewage sludge incinerated per day at the facility or the design capacity of the facility, taking into account the total amount of sewage sludge that can be fired each day by all the incinerators within the property line of the facility. "The Technical Support Document for Incineration" (Reference number 56) describes how the sewage sludge feed rate is to be measured.

The feed rate of a facility, in metric tons per day is used in calculating the pollutant limits (i.e., concentration of a metal in sewage sludge). The numerical limit must be calculated based on all sludge fired at a facility. Otherwise, it will not account for all the emission from the facility and may not provide an adequate level of protection.

Stack Height

The stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground surface at the base, when the difference is equal to or less than 65 meters. Owners or operators of incinerators with stacks higher than 65 meters must determine the creditable stack height above 65 meters in accordance with "good engineering practice" (GEP) (see 40 CFR 51.100(ii)(1)(ii)). Creditable GEP stack height means the greater of the following measurements: (1) 65 meters, measured from the ground level elevation at the base of the stack; or (2) a calculated measurement based on the height (and, possibly, width) of nearby

structures and a constant. The latter measurement is derived from the formula that follows:

$$Hg = H + 1.5L$$

Where:

Hg = GEP stack height, measured from the ground level elevation at the base of the stack, in meters.

H = Height of nearby structure(s), measured from the ground level elevation at the base of the stack, in meters.

L = Lesser dimension, height or projected width, or nearby structure(s), in meters.

The creditable GEP stack height was developed by the Agency to assure that the degree of emission limitations required for the control of any air pollutants under an applicable SIP is not affected by that portion of a stack height exceeding GEP or by any other dispersion technique. Guidance is available on how to calculate good engineering stack height (Reference number 42).

Total Hydrocarbons

Total hydrocarbons is the sum of all emitted organic compounds that have one or more carbon-to-carbon bonds, one or more carbon-to-hydrogen bonds, and that may also have one or more carbon-to-chlorine, carbon-to-nitrogen, or carbon-to-oxygen bonds. For the purposes of today's proposal, total hydrocarbons is defined as a pollutant for which the Agency is proposing limits. The limits are expressed in terms of the concentration of total hydrocarbons in the emissions. EPA is controlling hydrocarbon emissions as a way of limiting the emission of organic pollutants present in the sludge fed into the incinerator and that are created during the incineration process. This proposed approach is discussed further later in this subpart of the preamble.

General Requirements (§ 503.62)

Other Governing Regulations

In addition to the requirements in Subpart G of the proposed rule, owners and operators of sewage sludge incinerators must comply with existing requirements promulgated under the authority of the Clean Air Act (CAA). Sewage sludge incinerators are subject to both the beryllium NESHAP (40 CFR 61.30 through 61.34) and the mercury NESHAP (40 CFR 61.50 through 61.55). Furthermore, the 47 facilities built or substantially modified after July 11, 1973, and any new sewage sludge incinerators that are built are subject to the NSPS for sewage sludge incinerators in 40 CFR 60.150 through 60.154.

State Implementation Plans require the review of new sewage sludge

incinerators under procedures for "prevention of significant deterioration (PSD) of air quality" (see 40 CFR 51.21) and for "new source review" (see 40 CFR 51.165). These procedures are designed to (1) prevent further air quality degradation in non-attainment areas because of particulates, ozone, nitrogen oxides, sulfur dioxide, lead, and carbon monoxide; (2) ensure that no significant deterioration occurs in other areas; and (3) ensure compliance before a permit is issued to construct or modify an emission source. This review may require a new sewage sludge incinerator to install the best available control technology economically achievable to control the criteria pollutants to a level that will not cause any deterioration in air quality.

Incinerator Ash

Today's proposal does not include separate requirements for the disposal of ash from the incineration of sewage sludge. Rather, the Agency is referencing the applicable requirements for the disposal of incineration ash from 40 CFR Parts 257, 258, and 261 through 268.

Feed Rate

EPA is requiring the use of either the design capacity of the facility or the feed rates of all sewage sludge incinerators within the property boundary of a facility in calculating the pollutant limits for a facility. As discussed above, this requirement is necessary to ensure that emissions from the facility will not contain pollutant concentrations that pose an unreasonable risk to human health. For the purposes of this rule, an unreasonable risk would be one in which the pollutant limits exceeded an incremental carcinogenic risk level of 1×10^{-5} . If the feed rate of all sewage sludge incinerated at a facility is not considered, the emissions from the facility could pose an incremental risk greater than 1×10^{-5} .

Monitoring Instruments

Owners and operators of sewage sludge incinerators must install, calibrate, operate, and maintain an instrument that measures the sludge feed rates of an incinerator. The instrument must have an accuracy of plus or minus five percent over its operating range, a standard generally used by the Agency. EPA is also proposing that owners and operators install, calibrate, operate, and maintain instruments that continuously monitor and record the oxygen content of the exit gas (before the gas is diluted by air), the temperature in the combustion zone of the incinerator, and the total hydrocarbon concentration in the exit

gases. The rationale for each of these requirements is discussed below.

1. *Feed Rates.* The NSPS for sewage sludge incinerators require instruments for monitoring sludge feed rate for all sewage sludge incinerators built after 1973. The effect of today's proposal is to require the owners or operators of the 122 facilities that are not covered by the NSPS to install instruments that continually monitor the feed rate of sewage sludge, if they have not already done so.

The ability to monitor sludge feed rate continuously allows for more stable operation of the incinerator and provides the operator with advanced knowledge of a change in operating conditions. For example, a large increase in the sludge feed rate increases the drying load on the top hearths of a multiple hearth incinerator causing the combustion zone to drop to a lower hearth. This type of upset results in increased gas flow through the furnace and an increase in particulate emissions to the air pollution control system. A large decrease in the sludge feed rate will cause the combustion zone to rise to a higher hearth. The higher combustion hearth location reduces the overall residence time of the combustion gases in the incinerator and can increase the emissions of unburned organic pollutants from the incinerator.

Continuous monitoring of the sludge feed rate ensures that the furnace is not fed sludge in excess of the unit's design capacity. If the design capacity of the incinerator were exceeded, excessive emissions from the incinerator and incomplete combustion of organics and carbon could result.

EPA is including a requirement for owners and operators to provide access to the sewage sludge fed to the incinerator so that a well-mixed, representative grab sample of the sewage sludge can be collected easily. The representative sample allows periodic verification to be made that the facility is in compliance with the metal limits in its permit.

2. *Oxygen In Combustion Gases.* The Agency is proposing that owners and operators of incinerators continuously monitor and record the amount of oxygen in combustion gases leaving the combustion zone to avoid excess oxygen levels in the combustion gases. Excessive oxygen causes unnecessarily high gas velocities in the furnace. This phenomenon increases particulate matter in the gases, placing a greater load on the air pollution control system. Overloading the air pollution control system reduces the efficiency of the

system to remove organic and metal pollutants attached to the particulates.

3. *Combustion Zone Temperatures.* Owners and operators are also required to monitor and record the operating temperatures in the combustion zone. A proper operating temperature is the single most important control parameter of an incinerator. Temperatures that are too low result in incomplete combustion of organic pollutants. Temperatures that are too high result in excessive metal emissions.

For multiple hearth furnaces, EPA is proposing that every hearth have a temperature-measuring device (thermocouple) and that the burning hearth have two measuring devices. The requirement for two devices in the burning hearth is to provide redundancy in the case of the failure of one device. The high temperature of the burning hearth increases the rate of failure of the thermocouples. In addition, the burning hearth temperature is the most critical temperature in the furnace and requires the most control to minimize emissions. This requirement is consistent with the revised NSPS for sewage sludge incinerators (40 CFR 60.153(b)(3)).

For fluidized bed furnaces, the Agency is proposing two temperature measuring devices: one in the bed and one in the outlet duct of the fluidized bed. For electric furnaces and rotary kilns, the Agency is proposing one temperature measuring device in the drying zone and two in the combustion zone. These requirements are consistent with the revised NSPS for sludge incinerators (40 CFR 60.153(b)(3)).

4. *Total Hydrocarbons in Emission Gases.* The Agency is proposing that owners and operators continuously monitor and record the total hydrocarbon concentration in the emission gases of sewage sludge incinerators. As discussed later in this subpart of the preamble, EPA is proposing to limit the concentration of total hydrocarbons in the emissions in lieu of specifying the concentration of an organic pollutant that may be fed into the incinerator.

Total hydrocarbon emissions are to be measured with a flame ionization detector. The detector is a hydrogen-oxygen flame into which a small sample of the exhaust gases from an incinerator is introduced. If there are any hydrocarbon gases present in the sample, they will burn in the hydrogen-oxygen flame. When any carbon-to-carbon or carbon-to-hydrogen bonds are broken and oxidized in the flame, an ion is released. An electrical detection system senses the release of the ion. The electrical signal strength is a direct measure of the number of carbon-to-

carbon and carbon-to-hydrogen bonds that are oxidized in the flame. The direct readout of this signal is calibrated to indicate the concentration of hydrocarbons in the sample stream by use of a series of calibration gases of known hydrocarbon concentration which are periodically introduced into the sample stream. The flame ionization detection system is described by Method 25A in Appendix A of 40 CFR Part 60.

The Agency is requiring that a flame ionization detector include a 150 degrees Celsius heated sample line and inlet system for measuring total organic emissions. The 150 degree heated sample line keeps the semi-volatiles in the gas sample in the vapor phase and prevents their reduction in the sample transportation and conditioning system. EPA estimates that, without the heated sample line, only 50 to 60 percent of the total hydrocarbons would be detected by the flame ionization detector. With the heated sample line, at least 75 percent of the total hydrocarbons present in the exit gases can be detected. This reading is then multiplied by a correction factor and adjusted to 7-percent oxygen to obtain the true concentration of total hydrocarbons. Further discussion of the flame ionization detector system is in the "Technical Support Document for the Incineration of Sewage Sludge" (Reference number 56).

Incineration—National Pollutant Limits (§ 503.63)

As described in Part III of the preamble, the Agency initially evaluated 34 pollutants. With simple models using the worst combination of conditions, the Agency found that the following pollutants did not pose an unreasonable risk to human health in the concentrations shown in the "40 Cities Study": copper, selenium, and zinc. These pollutants are among the pollutants listed in Subpart H of the proposed rule that are eligible for removal credits when sewage sludge is incinerated.

Equations

EPA is proposing to use one equation for beryllium, a second equation for mercury, a third equation for lead, and a fourth equation for arsenic, cadmium, chromium, and nickel to calculate the allowable concentration of these pollutants in sewage sludge that may be incinerated. A fifth equation is used to calculate an acceptable concentration of total hydrocarbons in the combustion gases exiting the incinerator.

The Agency found that it could not establish a specific concentration for each pollutant in the sludge or a specific

concentration for total hydrocarbons in the emissions that would be applicable to all facilities. Key variables could make a significant difference in the allowable pollutant concentration. Such variables include the physical characteristics of the facility (e.g., feed rate of the facility, stack height, control efficiency of the incinerator and air pollution control system), and the terrain and meteorology where the facility is located.

1. *Beryllium.* The equation for beryllium is:

$$C = \frac{10}{(1-CE) \times SF}$$

Where:

C=Maximum allowable concentration of beryllium in sewage sludge, in milligrams per kilogram (dry weight basis).

CE=Sewage sludge incinerator control efficiency (from Table 1 in the proposed rule).

SF=Sewage sludge feed rate, in metric tons per day (dry weight basis).

This equation is used to calculate the maximum allowable concentration of beryllium in sewage sludge that may be incinerated at a facility without exceeding the beryllium NESHAP emission of 10 grams over a 24-hour period (see 40 CFR 61.32).

The owner or operator provides the permitting authority with the design capacity of the facility (i.e., the combined feed rate of all the incinerators at a facility) to insert into the equation. The NESHAP emission limits are developed with a numerical value that relates a level of emission to a ground level concentration that will not cause undue risk to an individual exposed to the maximum pollutant concentration in the plume. Thus, the Agency did not include a dispersion factor in the equations for beryllium or mercury.

The Agency assumed a 0.99 control efficiency to convert the beryllium NESHAP emission limit to an allowable concentration in sludge. This control efficiency, the result of the test, is the only data available to the Agency because beryllium is not generally found in incinerated sewage sludge and therefore, analyses have not been conducted for beryllium. If owners or operators demonstrate a greater or lesser control efficiency for beryllium in a performance test of the facility, the actual control efficiency demonstrated will be inserted into the equation. The Agency is seeking data that demonstrates the efficiency with which sewage sludge incinerators and air

pollution control devices control the emission of beryllium.

Using the equation with the sludge feed rate of the facility and 0.99 control efficiency, the permitting authority calculates the maximum allowable beryllium concentration. This concentration is compared with the concentration of beryllium found in the sludge to be incinerated at the facility. Sludge that exceeds the maximum allowable concentration may not be incinerated.

2. *Mercury.* The equation for mercury is:

$$C = \frac{3200}{(1 - CE) \times SF}$$

Where:

C = Maximum allowable concentration of mercury in sewage sludge, in milligrams per kilogram (dry weight basis).

CE = Sewage sludge incinerator control efficiency (from Table 10 in the proposed rule).

SF = Sewage sludge feed rate, in metric tons per day (dry weight basis).

This equation is used to calculate the maximum allowable concentration of mercury in sewage sludge that may be incinerated at a facility without exceeding the mercury NESHAP emission limit of 3,200 grams per 24-hour period (see 40 CFR 61.52).

As in the previous equation, the owner or operator provides the permitting authority with the design capacity of the facility or the combined sewage sludge feed rates of all the incinerators at the facility. The permitting authority then inserts this facility-specific feed rate into the equation.

The permitting authority inserts a zero into the equation for the mercury control efficiency. A zero control efficiency is included in the proposal because, in developing the NESHAP for mercury, the Agency assumed a zero control efficiency. If owners or operators can demonstrate a greater level of control based on a performance test, the permitting authority will use the control efficiency demonstrated in the performance test. Using the sewage sludge feed rate of a facility and either a zero control efficiency or a control efficiency demonstrated in a performance test, the permitting authority calculates the maximum allowable mercury concentration in sewage sludge that may be incinerated at a facility. This maximum allowable concentration of mercury is then compared with the concentration of mercury found in the sewage sludge incinerated at the facility. If the facility's

sludge exceeds the allowable concentration, the owner or operator may not incinerate the sludge containing the excessive concentrations of mercury.

3. *Lead.* The equation for lead is:

$$C = \frac{.25(\text{NAAQS}) \times 86,400}{\text{DF} \times (1 - \text{CE}) \times \text{SF}}$$

Where:

C = Maximum allowable concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

NAAQS = National Ambient Air Quality Standard for lead (1.5 micrograms per cubic meter maximum arithmetic mean averaged over a calendar quarter).

86,400 = Number of seconds in a day.

DF = Dispersion factor, in micrograms per cubic meter per gram per second (from Table 9 in the proposed rule).

CE = Sewage sludge incinerator control efficiency (from Table 10 in the proposed rule).

SF = Sewage sludge feed rate, in metric tons per day (dry weight basis).

To insert a value for the dispersion factor, the owner or operator selects the dispersion factor corresponding to the stack height of the incinerators at the facility from Table 9 of the proposed rule, if the height of the incinerator stack is 65 meters or less. If the stack exceeds 65 meters, the creditable stack height above 65 meters is determined in accordance with 40 CFR 51.100(ii)(1)(ii). The results of this calculation would be used in the EPA-approved air dispersion model, such as the ISCLT (appropriate for the facility's surrounding terrain and meteorology), to calculate a dispersion factor for the equation. Owners or operators whose incinerators have stacks less than 65 meters also may conduct their own air dispersion modeling at the facility to establish a facility-specific dispersion factor in accordance with EPA's "Guidelines on Air Quality Models" (Reference number 44).

The control efficiency for lead is listed in Table 10 of the proposed rule. The owner or operator may conduct performance tests of the facility, in accordance with the requirements specified by EPA, to demonstrate an alternative control efficiency. If a performance test is conducted, the actual control efficiency demonstrated will be included in the equation.

As in the previous equations, the owner or operator provides the permitting authority with information on the design capacity of the facility or the combined sewage sludge feed rates of all the incinerators at the facility. Using the above information, the permitting authority would calculate a facility-specific numerical limit for lead. This

calculation is then compared to the concentration of lead found in the sewage sludge to be incinerated at the facility.

4. *Arsenic, Cadmium, Chromium, And Nickel.* The equation for arsenic, cadmium, chromium, and nickel is:

$$C_i = \frac{\text{RSC}_i \times 86,400}{\text{DF} \times (1 - \text{CE}_i) \times \text{SF}}$$

Where:

C_i = Maximum allowable concentration of metal pollutant in sewage sludge, in milligrams per kilogram (dry weight basis).

RSC_i = Risk specific concentration for the metal in sewage sludge, in micrograms per cubic meter.

86,400 = The number of seconds in a day.

DF = Dispersion factor, in micrograms per cubic meter per gram per second (from Table 9 in the proposed rule).

CE_i = Sewage sludge incinerator control efficiency (from Table 10 in the proposed rule).

SF = Sewage sludge feed rate, in metric tons per day (dry weight basis).

The permitting authority would select the appropriate risk specific concentration from Table 8 in the proposed rule. As discussed earlier, the risk specific concentrations are derived from EPA's cancer potency values (Q₁*). The owner or operator would then follow the same process as described above for lead.

5. *Total Hydrocarbons.* EPA is proposing to limit the concentration of total hydrocarbons in the emissions of incinerators for two reasons. First, this approach controls the emission of individual organic compounds found in sludge fed into the incinerator, and second, the approach controls the emission of organic compounds that are created during the combustion process (i.e., products of incomplete combustion—PICs). The Agency recognizes that setting limits on total hydrocarbons is an innovative approach that may be applicable to other incinerator programs. Therefore, the Agency will carefully review and consider the issues raised and the comments submitted on this approach.

(a) *Human Health Criterion For Organic Components of Total Hydrocarbons.* To develop a risk specific concentration for total hydrocarbons, the Agency developed a weighted carcinogenic potency (Q₁*) value for the organic compounds that are projected to be in the emissions of a sewage sludge incinerator. In developing the Q₁* value, the Agency multiplied the Q₁* value of every carcinogenic organic pollutant listed in IRIS by the weighted

fraction of the compound in the emissions of sewage sludge incinerators. Calculating a weighted fraction of a compound in the emissions required a two-step process. First, the Agency determined the concentration (in $\mu\text{g}/\text{m}^3$) for the pollutant in the emissions in one of three ways. If the compound was measured in the emission of the sludge incinerator, the concentration of the compound was used. In the case of compounds expected to be present, but not detected, the observed detection limit ($\mu\text{g}/\text{m}^3$) was used. Finally, for the remaining pollutants listed in IRIS and detected in emissions from other sources, an analytical detection limit of $0.1 \mu\text{g}/\text{m}^3$ was assigned to those pollutants. The Agency then calculated a weighted fraction for each pollutant by dividing the sum of all the pollutant concentrations into each individual pollutant concentration. EPA multiplied the weighted fraction of each pollutant by the pollutant's Q_1^* value and then added the products of the multiplication to give a weighted carcinogenic potency value for all carcinogenic pollutants detected or not detected.

Weighted fractions were also calculated for all non-carcinogens that have RfDs in IRIS. However, the Agency assumed that the actual ambient air concentration of the non-carcinogens (i.e., threshold pollutants) would not exceed their inhalation RfDs and, therefore, do not contribute to the weighted Q_1^* value or cause adverse health effects.

The Agency is seeking comments on its determination that the expected concentration of non-carcinogens would not be associated with adverse health effects. The weighted average Q_1^* value for total hydrocarbons is $0.013 \text{ (mg/kg/day)}$. All the data and calculations used in developing the weighted Q_1^* value are in Appendix E of the "Technical Support Document: Incineration of Sewage Sludge" (Reference number 56). The Agency is soliciting comments on the approach used.

From the weighted Q_1^* value, the Agency developed a risk specific concentration for total hydrocarbons using the same equation that was used to develop the risk specific concentrations for metals. The risk specific concentration for total hydrocarbons was derived as follows:

$$\text{RSC} = \frac{\text{RL} \times \text{BW} \times 1,000}{Q_1^* \times I_a}$$

Where:

RSC = Risk specific concentration of total hydrocarbons, in micrograms per cubic meter.

RL = Risk level of 1×10^{-5} .

BW = Body weight of 70 kilograms.

Q_1^* = Weighted average Q_1^* value of 0.013 for all carcinogens with Q_1^* values in IRIS and all non-carcinogen (threshold) pollutants in IRIS, in $(\text{mg/kg/day})^{-1}$.

I_a = Inhalation rate of 20, in cubic meters per day.

1,000 = Factor to convert milligrams to micrograms.

Therefore:

$$\begin{aligned} \text{RSC} &= \frac{(1 \times 10^{-5}) \times (70 \text{ kg}) \times 1,000}{(0.013) \times 20 \text{ m}^3/\text{day}} \quad \text{or} \\ &= 2.69 \mu\text{g}/\text{m}^3 \end{aligned}$$

The risk specific concentration is extremely sensitive to the analytical limits of detection selected for individual carcinogenic organic compounds not detected in emissions tests of sewage sludge incinerators. A relatively high analytical detection limit will generate a high risk and a low detection limit will generate a lower risk. This is particularly true for dioxins, PCBs, and aldrin/dieldrin.

The risk specific concentration is then used to develop a numerical limit for the concentration of total hydrocarbons in the emissions.

(b) *Measuring Total Hydrocarbons.* The instrument used to monitor total hydrocarbons is a flame ionization detector. Questions have been raised about the capability of a flame ionization detector to monitor continuously the total hydrocarbons emissions from an incinerator. Moreover, there is uncertainty about the relationship of the reading of the flame ionization detector to the risk specific concentration that will protect individuals to an incremental carcinogenic risk of 1×10^{-5} .

Introduced in the mid-1960's, flame ionization detectors have a number of applications, such as detection systems in gas chromatographs located in laboratories around the world. Their wide use in the analysis of organic

compounds has resulted in a substantial body of literature on using the detector to monitor total hydrocarbons. However, there are problems with the system as a regulatory compliance method.

First, organic compounds with very high boiling points tend to condense in the sampling line between the stack and the detector system, escaping detection. As a result, the detector system does not accurately measure these high-boiling compounds. Most of this problem can be overcome by the use of a heated sampling system operated at 150 degrees Celsius. Moreover, a correction factor has been applied in EPA's equation for calculating the total hydrocarbon limit to account for the loss of the high-boiling organic compounds.

A second problem with the flame ionization detector system is the differing response of the detector to different compounds incinerated. The detector system primarily measures the oxidation of carbon-to-carbon and carbon-to-hydrogen bonds. Organic compounds with differing numbers of these bonds will give different responses. Fortunately the relative response of a large number of the organic compounds are known. The Agency is calculating a weighted average response factor for the flame ionization detector analogous to our weighted Q_1^* calculation for the risk specific concentration. This weighted average response factor is incorporated into the conversion factors in the equation used to calculate a numerical limit for total hydrocarbons thereby relating the reading of the device to an incremental carcinogenic risk level of 1×10^{-5} .

EPA has initiated tests to verify the long-term reliability of the detectors. The equipment requires routine maintenance and daily calibration, which are well within the expertise of personnel at sewage sludge incinerator facilities. Flame ionization detectors, including the 150-degree Celsius sampling line cost approximately \$20,000. Annual operating costs are expected to be \$6,000.

(c) *Calculating A Numeric Limit For Total Hydrocarbons.* The equation to be used in developing a numerical limit for total hydrocarbons is:

$$THC = \frac{RSC \times 3,240,000,000}{DF \times GF}$$

Where:

THC=Maximum allowable total hydrocarbon concentration in a sewage sludge incinerator stack, in parts per million, at 7-percent oxygen.
 RSC=Risk specific concentration for THC, in micrograms per cubic meter.
 DF=Dispersion factor, in micrograms per cubic meter, per gram per second.
 GF=Maximum gas flow from the sewage sludge incinerator, in gram moles per day.
 3,240,000=Correction factor in gram moles, per gram per second per day.

The conversion factor of 3,240,000 is derived from:

$$CF = \frac{86,400 \times 0.75 \times 1.7 \times 1 \times 10^6}{34}$$

Where:

86,400=Number of seconds in a day.
 0.75=Correction factor for the estimated loss of organic compounds in the flame ionization detector system (dimensionless).
 1.7=Ratio of the flame ionization detector of propane (3.0) to the weighted average flame ionization detector response of the list of compounds (1.8), used to determine the weighted average unit risk.
 1×10^6 =Conversion parts of per million to concentration.

The derivation of this equation is explained more fully in Appendix E of the "Technical Support Document: Incineration of Sewage Sludge" (Reference number 56).

As with the equation for the metals, the owner or operator has two options for inserting a value for the dispersion factor. A dispersion factor corresponding to the stack height of the facility's incinerators may be selected from either Table 9 of the rule or the owner or operator may conduct air dispersion modeling of the facility to establish a facility-specific dispersion factor in accordance with EPA's "Guidelines on Air Quality Models" (Reference number 44).

The maximum gas flow (GF) is calculated using the work sheet in Appendix D of today's proposed rule. This work sheet uses the following: (i) The maximum sludge feed rate; (ii) the average calculated combustion temperature of the sewage sludge based on the percent volatiles, heating value of the sludge volatiles, and percent solids; and (iii) the average auxiliary fuel usage. The result of the Appendix D calculation is expressed in gram moles of combustion gases at 50 percent

excess air (seven percent oxygen) and zero percent moisture.

When the flame ionization detector system actually measures the total hydrocarbons, the measurement must be converted to 50 percent excess air (seven percent oxygen) before it is compared to the facility's numerical limit for total hydrocarbons. Unless this conversion is done, the hydrocarbons would be diluted by the excess air and not represent the actual hydrocarbon concentration in the exit gases. The oxygen correction is an engineering correction expressed as:

$$THC_{(corrected)} = THC_{(actual)} \times \frac{14}{21-Y}$$

Where:

Y=Measured oxygen concentration, percent.

The correction factor is developed at 50 percent excess air. The correction is easily made because EPA is proposing that sewage sludge incinerators have instruments that continuously monitor the oxygen concentration in combustion gases (§ 503.62(f)). The calculated total hydrocarbon limit is then compared to the oxygen-corrected total hydrocarbon reading from the flame ionization detector to determine if the incinerator is in compliance.

(d) *Effect of the Proposed Approach.* There are those who believe that by limiting total hydrocarbons, the Agency is establishing more stringent emission controls than if the Agency were to regulate the concentration of organics in sewage sludge by developing numerical limits on a pollutant-by-pollutant basis. They reason that the total hydrocarbon limit is based on the sum of the weighted average Q_1^* values for all carcinogenic organic pollutants listed in IRIS. A pollutant-by-pollutant approach would control the concentration of individual carcinogenic organic pollutants to a pollutant-by-pollutant individual risk level of 1×10^{-5} . Potentially, the summed risk of ten organic pollutants could be 10×10^{-5} or 1×10^{-4} , depending on the actual concentration of a pollutant in the emissions.

Based on the Agency's examination of the ten model plants, 122 facilities that operate 219 incinerators are projected to be out of compliance with the pollutant limits in today's proposal. Of those 122 facilities, a subset of 28 facilities that operate 61 incinerators are projected to exceed the total hydrocarbons numerical limit. However, these facilities also would exceed the numerical limit for one or more metals.

Therefore, the approach does not affect the number of facilities that would be in or out of compliance.

The compliance mechanism for a pollutant-by-pollutant approach and for total hydrocarbons is the installation of after-burners. After-burners cost approximately \$1 million.

(e) *Alternatives Considered.—(i) Organic Pollutant-by-Organic Pollutant Approach.* EPA originally considered controlling the concentration of organic pollutants fed into an incinerator on a pollutant-by-pollutant basis, similar to the approach that the Agency is proposing for metals. However, the approach was not feasible for organic pollutants because the Agency could not establish a destruction and removal efficiency for sewage sludge incinerators. The series of tests on four sewage sludge incinerators revealed that organic destruction and removal efficiencies of the incinerators ranged from 99.7 percent to negative efficiencies of -1,314 percent (see Table IX-G.2). A negative efficiency means that compounds were formed during the combustion process (i.e., a product of incomplete combustion—PIC). Some of these PICs are known or suspected carcinogens. Organic destruction and removal efficiencies (DREs) of an incinerator are needed to relate the emission of an organic pollutant to its risk specific concentration and to an allowable concentration in sewage sludge. Without consistent DRE data from sewage sludge incinerators, the Agency had no basis on which to construct an equation which could be used to calculate allowable organic concentration.

TABLE IX-G.2.—ORGANICS IDENTIFIED IN SLUDGE INCINERATOR TESTING

Compounds	DE range	
	Hi	Low
Semivolatiles:		
Bis (2-ethylhexyl)phthalate.....	95.7	ND
1,2-Dichlorobenzene.....	97.3	¹ 94.2
1,3-Dichlorobenzene.....	99.7	¹ 67.5
1,4-Dichlorobenzene.....	95.7	87.4
2-Nitrophenol.....	97.2	ND
Phenol.....	81.7	ND
Naphthalene.....	90.9	ND
Volatiles:		
Acrylonitrile.....	¹ -1.9	-349.0
Benzene.....	¹ 25.3	¹ -1314.0
Carbon tetrachloride.....	99.8	79.1
Chlorobenzene.....	99.8	23.0
Chloroform.....	-39.4	-527.5
1,2-Dichloroethane.....	97.0	ND
Trans 1,2-Dichloroethene.....	99.4	¹ 76.0
Ethylbenzene.....	99.3	¹ 6.0
Methylene chloride.....	98.6	¹ -145.0
Tetrachloroethene.....	98.6	¹ -175.0
Toluene.....	99.7	¹ -256.0
1,1,1-Trichloroethane.....	99.6	70.0

TABLE IX-G.2.—ORGANICS IDENTIFIED IN
SLUDGE INCINERATOR TESTING—Con-
tinued

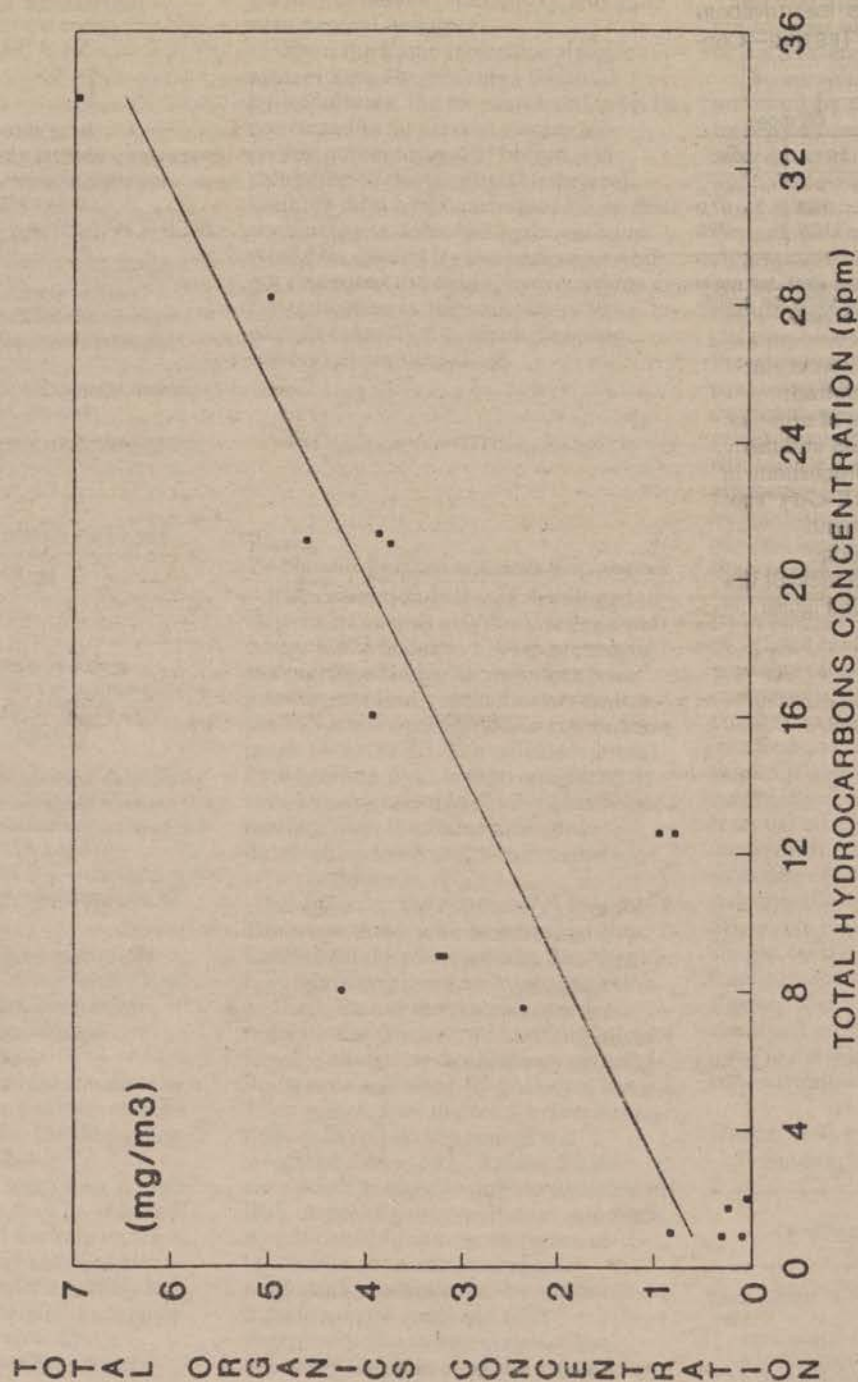
Compounds	DE range	
	Hi	Low
Trichloroethene.....	97.9	-67.0
Vinyl chloride.....	-112.0	-426

The pollutant was detected in the stack, but not in the sludge. Efficiency is calculated using the analytical detection limit of the pollutant in sludge.

The data from the four incinerator tests shows a strong correlation between the concentration of organic compounds in the emissions and the concentration of total hydrocarbons in the emissions (See Figure IX-G.1). The "Technical Support Document: Incineration of Sewage Sludge" (Reference number 56) includes all the data used in developing the Figure.

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Figure IX-G.1
TOTAL HYDROCARBONS vs.
TOTAL ORGANICS



Correlation Coefficient = 0.741

BILLING CODE 6560-50-C

The ability to correlate concentrations of organic compounds emitted with the concentration of total hydrocarbons in the emission gases persuaded EPA to propose a numerical limit for the concentration of total hydrocarbons in the emission gases. Setting numerical limits for total hydrocarbons has several advantages over setting numerical limits for individual organic compounds in sewage sludge fed into an incinerator. By setting a numerical limit based on the concentration of total hydrocarbons in the emissions, the Agency does not need the DRE of an incinerator. EPA could have proposed that owners or operators conduct performance tests of their incinerators to determine the efficiency of their units and then calculate an allowable pollutant concentration based on the results of the performance test. Such performance tests cost approximately \$20,000 per facility.

If the Agency had based limits on the concentration of organic pollutants in sewage sludge, PICs created during the combustion process would not have been controlled. By setting numerical limits on the basis of the total

hydrocarbon concentration in the emissions, however, EPA will be limiting the emission of the organic compounds fed into the incinerators, as well as those compounds formed during the combustion process. In addition, setting numerical limits on the basis of total hydrocarbons allows the Agency to propose a more comprehensive rule sooner. The proposed rule for the incineration of sewage sludge covers all organic pollutants that have a human health criterion listed in IRIS. If the Agency were to establish, propose, and promulgate a pollutant-by-pollutant concentration for potentially hundreds of organic pollutants in sewage sludge, the process would take many years. Furthermore, such a technology-based approach is inconsistent with the requirements of section 405(a) of the CWA to establish pollutant limits that are adequate to protect human health and the environment.

(ii) *Establish A DRE For The Operation Of Sewage Sludge Incinerators.* The Agency's existing incinerator regulations are primarily based on the performance of well-

operated incinerators. However, as indicated above the Agency does not have sufficient data to determine the DRE for a well-operated incinerator.

(iii) *Carbon Monoxide.* EPA considered, but rejected, setting numerical limits for carbon monoxide (CO) in lieu of setting limits for total hydrocarbons. The Agency will propose that hazardous waste incinerators limit the emission of carbon monoxide to 100 ppm. If the 100 ppm limit is exceeded, facilities would be required to monitor total hydrocarbons. The Agency based the 100 ppm carbon monoxide limit on a review of the emissions of PICs from a number of hazardous waste incinerators and boilers that burn hazardous wastes. The data support the conclusion that low carbon monoxide levels (i.e., less than 100 ppm) are associated with low rates of PICs in hazardous waste incinerators. However, the Agency could not draw the same conclusion for sewage sludge incinerators (see Table IX-G.3).

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TABLE IX-G.3

SUMMARY OF EMISSIONS DATA FROM 1987 INCINERATOR TESTS

SITE	RUN	THC (ppm)	CO (ppm)	8,2,6,PH (ug/M3)	1,2,DICHL OROBENZENE (ug/M3)	1,3,DICHL OROBENZENE (ug/M3)	1,4,DICHLORO BENZENE (ug/M3)	2-NITRO PHENOL (ug/M3)	PHENOL (ug/M3)
1	1	9	320	2.5			22		
1	2	16	450						
1	3	9	450	22.1	15.6				
1	4	7.5	360				25.9		
1	5	8	325	14.2		11.5	43.8	89.4	173
2	1	21.1	821	191	34	0	50.7	42.6	107
2	2	21	821	35.8	15.8	0	24.7	91	208
2	3	34	1490	36.4	36.4	0	41.7	0	61.7
2	4		1563	15	13.5	0	16.6	91.5	153
2	5		1037	7.2	35.4	3.1	29.7	112	50.1
2	6		888	7.3	25.8	2.2	36.2	0	0
3	1	0.9	168	5.2	0	0	0	0	0
3	2		71	30.5	0	0	0	0	0
3	3	2	132	10.1	0	0	0	0	0
4	1		256						
4	2	21.3	1503						3.6
4	3	182	1841						6.9
4	4	1.01	250						8.8
4	5	1.72	98						
4	6	0.91	221						
4	7	12.6	1230						
4	8	12.6	1230						
4	9	28.2	2838						

TABLE IX-G.3 (CONT'D)

SUMMARY OF EMISSIONS DATA FROM 1987 INCINERATOR TESTS

SITE	RUN	NAPHTHAL. (ug/M3)	ACRYLONITRIL (ug/M3)	BENZENE (ug/M3)	CCL4 (ug/M3)	CHLORO BENZENE (ug/M3)	CHLOROFORM (ug/M3)	1,2 DICHL OROETHANE (ug/M3)
1	1		454	883	8.1	50.7	218	0.6
1	2		884	948	5.6	75.5	214	0.2
1	3		574	774	3.1	47.6	276	0.5
1	4		439	528	3.4	27	226	0.9
1	5		1073	1287	6.8	69.4	325	4.6
2	1	65.6	2159	507	0.4	29	0.34	0
2	2	124	1892	283	0.31	18	0.38	0
2	3	85.3	3159	511	0.44	19.5	1.1	0
2	4	0	2594	573	0.46	53.8	0.49	0
2	5	282	3351	730	0.1	43.3	0	0
2	6	62.6	3869	4191	0	33.3	0	0
3	1	0	0	37	0	0.29	244	0
3	2	0	0	62	0	0.6	745	0
3	3	0	0	7.4	1.1	0	4.1	0
4	1	1.3	8737	902	0	255	0	0
4	2	3.4	2429	433	4.41	102	11.4	0
4	3	3.6	8566	2224	5.02	324	25.1	0
4	4		504	142	2.16	5.91	5.84	0
4	5		145	57.8	0.242	2.63	0.617	0
4	6		0	54.9	0.384	0	1.6	0
4	7		693	52.7	0.92	7.11	0.823	0
4	8		816	68.2	0	6.35	3.7	0
4	9		4555	307	7.18	16.3	13.1	0

TABLE IX-G.3 (CONT'D)
SUMMARY OF EMISSIONS DATA FROM 1987 INCINERATOR TESTS

SITE	RUN	TRANS		ETHYL BENZENE (ug/M3)	METHYLENE CHLORIDE (ug/M3)		TETRA CHLORO ETHENE (ug/M3)		TOLUENE (ug/M3)		1,1,1 TRICH LOROETHANE (ug/M3)		TRICHLORO ETHENE (ug/M3)		VINYL CHLORIDE (ug/M3)		DIOXIN EQUIVALENTS (ug/M3)
		1,2 DICHL OROETHANE (ug/M3)	1,2 DICHL OROETHANE (ug/M3)														
1	1	7.2	34.1	82.4	898	232	10.1	44.1	225								
1	2	7.3	31	10.2	962	252	14.4	81	335								
1	3	12.8	249.6	176.8	572	201	15.6	78.7	211								
1	4	11.3	37.1	154.9	450	193	25.5	46.8	175								
1	5	14	69.3	43.4	300	441	7.9	101.1	430								
2	1	0.74	10.5	0	23.6	341	0	2.8	913								
2	2	0.77	0.79	2.7	16.1	241	0	3	918								
2	3	1.1	29.8	0.14	22.4	2005	0.27	8.7	693								
2	4	0.36	91.7	323	27.9	2389	0.59	8.7	1389								
2	5	0.46	34.1	181	54.3	1322	0	4.6	1101								
2	6	0.77	11.6	29.5	114	4437	0	9.6	1273								
3	1	0	0.49	11	0	2.2	5	0.62	0								
3	2	0	0	6.9	0	2.7	2.9	0	0								
3	3	0	3.3	1.9	3.9	11.3	3.7	1.2	0								
4	1	0	579	20.1	174	744	4.62	37.3	944								
4	2	0	61.3	4.96	73.5	193	1.66	7.19	511								
4	3	0	444	33.5	350	1316	24.4	141	465								
4	4	0	27.4	2.73	0.263	136	1.33	0.836	0								0.983
4	5	0	3.84	0	0.174	25.2	1.13	0.191	0								1.214
4	6	0	5.83	0	0.503	31.9	0.39	0.377	0								0.995
4	7	0	0	1	6.59	2.38	2.96	9.45	0								0.271
4	8	0	0	5.32	11.1	1.54	9.94	9.21	0								1.148
4	9	0	0	0.44	7.6	29.5	5.44	1.87	20.1								

NOTE: DIOXIN
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The carbon monoxide levels measured in the four sewage sludge incinerator tests were much higher than those measured in hazardous waste incinerators. The four sludge incinerators tested had carbon monoxide concentrations ranging from 71 ppm to levels over 2,000 ppm and an overall average carbon monoxide level of 795 ppm. The Agency also found that, even though the carbon monoxide level was high for a particular sewage sludge incinerator, the total hydrocarbon concentration was low for the same incinerator. Thus, EPA was unable to correlate carbon monoxide levels in sewage sludge incinerators to the concentration of organics in the emissions. This may be caused by the differences between the composition of sludge and hazardous waste and differences in incinerator design.

Sewage sludge is mostly water, with the combustible portion typically making up only 20 percent or less. Multiple hearth incinerators typically used for the incineration of sewage sludge are designed to remove the water content of sludge as efficiently as possible and to handle the large amount of ash left from sewage sludge incineration. The design configuration of multiple hearth incinerators results in incomplete combustion due to oxygen starvation and poor gas mixing and therefore, is not efficient for the combustion of organic pollutants.

Hazardous waste generally contains significant amounts of organic chemicals. To destroy these chemicals, hazardous waste incinerators are designed to achieve turbulent gas mixing, high combustion temperatures, and adequate gas residence times. When hazardous waste incinerators are operated properly, they normally achieve carbon monoxide levels well below 100 ppm.

(iv) *National Total Hydrocarbon Limit.* Another alternative on which the Agency is soliciting comment is the use of a single national total hydrocarbon limit applicable to all incinerators. This limit would be based on the information from all of the model plants in our database to calculate a reasonable worst case limit that would be protective at an incremental carcinogenic risk level of 1×10^{-5} at most incinerators. For example, if the Agency selected a total hydrocarbon level of 20 ppm our data indicates that approximately 80 percent of incinerators would meet 1×10^{-5} MEI risk. This approach would replace site-specific total hydrocarbon calculations at each facility. EPA solicits comments on the

merits and implications of this type of approach.

(f) *Limitations of the Proposed Approach.* EPA recognizes that limited data exist to quantify public health risks, particularly for total hydrocarbon emissions. For sewage sludge incinerators, the Agency has been able to identify and quantify eight to nine percent in the compounds of the total hydrocarbon emissions. The compounds which were identified, represented some organic carcinogens of great concern. As previously noted, the risk specific concentration is extremely sensitive to the compounds not detected and their assumed concentration. EPA believes its approach of assigning undetected carcinogen detection limit value for the purpose of developing the weighted Q_1^* value is consistent with the CWA section 405 requirement to protect human health and the environment. The Agency is continuing to conduct emission testing to improve the data base in support of today's proposal.

Other concerns raised about today's approach are that it accounts for only inhalation health impacts, but does not account for health impacts resulting from the indirect exposure to incineration emissions (e.g., through food or water) or for environmental impacts. At this time, the Agency has not yet developed procedures for quantifying indirect exposure or environmental impacts for purposes of establishing regulatory emission limits. However, work is underway to refine these procedures.

Example

The following example is to be used to illustrate how a sewage sludge incinerator facility would determine if it could meet the proposed numerical limits. The hypothetical facility has two incinerators with a total capacity of 25 dry metric tons per day each and a single stack that is 22 meters high. The sludge to be incinerated has an average volatile fraction of total solids of 0.5 and an average volatile solids fraction heating value of 5.5 kilocalories per gram. The two incinerators burn 24,000 pounds per day of fuel oil calculated on an annual basis. The sewage sludge to be incinerated contains the following pollutant concentrations:

Pollutant	Concentration (mg/kg)
Arsenic	4.79
Beryllium	0.548
Cadmium	9.54
Chromium	275.91
Lead	182.04
Mercury	2.15

Pollutant	Concentration (mg/kg)
Nickel	69.82

Table 9 in the proposed rule was used to obtain the dispersion factor of 14.78 micrograms per cubic meter, per gram per second for a 22-meter stack. The numerical limits for the metals listed above were then calculated using the equations described earlier, which are in § 503.63. For example, the numerical limit for arsenic was calculated as follows:

$$C_{As} = \frac{RSC_{As} \times 86,400}{DF \times (1 - CE_{As}) \times SF}$$

Where:

$RSC_{As} = 0.0023 \mu\text{g}/\text{m}^3$ from Table 8.

$DF = 14.78 \mu\text{g}/\text{m}^3/\text{g/s}$ from Table 9.

$CE_{As} = 0.97$ from Table 10.

$SF = 50$ dry tons per day capacity of both incinerators.

Therefore:

$$C_{As} = \frac{0.0023 \times 86,400}{14.78 \times (1 - .97) \times 50}$$

$C_{As} = 8.96 \text{ mg/kg}$.

Using the same procedure, but with appropriate risk specific concentrations from Table 8 and combustion efficiencies from Table 10, the following numerical limits were calculated:

Pollutant	Calculated numerical limit (mg/kg)	Measured sludge concentration (mg/kg)
Arsenic	8.96	4.79
Cadmium	1.90	9.54
Chromium	248.44	275.91
Lead	134.63	182.04
Nickel	77.16	69.82

The beryllium and mercury values were calculated using the equations (1) and (2) in § 503.63.

Pollutant	Calculated numerical limit (mg/kg)	Measured sludge concentration (mg/kg)
Beryllium	20	0.548
Mercury	64	2.15

Comparing the calculated numerical limits with the measured sludge

concentrations, the facility's sludge is found to exceed the concentrations for cadmium, chromium, and lead.

The numerical limit for total hydrocarbons was calculated using equation 5 as follows:

$$\text{THC} = \frac{\text{RSC} \times 3,240,000,000}{\text{DF} \times \text{CF}}$$

Where:

RSC = 2.69 micrograms per cubic meter (from Table 8).

DF = 14.78 micrograms per cubic meter per gram per second (from Table 9).
CF = 1.74×10^7 gram moles per day.

The gas flow of 1.74×10^7 gram moles per day was computed using the procedure in Appendix D of the rule as follows:

$$\text{Sludge Gas Flow} = \text{SF} \times \text{VF} \times \text{VEHC} \times 7.01 \times 10^4$$

Where:

SF = 50 dry tons per day sludge feed rate.

VF = average sludge volatiles fraction.

VEHC = 5.5 kilocalories per gram heating value of the sludge volatiles fraction.

Therefore:

$$\text{Sludge Gas} = 50 \times 0.5 \times 5.5 \times 7.01 \times 10^4 \text{ or}$$

Flow = 9.64×10^6 gram moles of combustion gas per day from sludge combustion. Fuel Gas Flow = FR × FC

Where:

FR = 24,000 pounds per day #2 fuel oil usage.

FC = 324.8 gram moles per day #2 fuel oil constant.

Therefore:

$$\text{Fuel Gas} = 24,000 \times 324.8 \text{ or}$$

Flow = 7.79×10^6 gram moles of combustion gas per day from the fuel combustion.

Therefore:

$$\text{Fuel Gas} = 9.64 \times 10^6 + 10^6$$

$$\text{Flow} = 1.74 \times 10^7 \text{ gram moles per day}$$

The gas flow would be inserted into the equation as follows:

$$\text{THC} = \frac{2.69 \times 3,240,000,000}{14.78 \times 1.74 \times 10^7} \text{ or } \text{THC} = 33.9 \text{ ppm}$$

Therefore, the facility would have to be operated to meet a 34 ppm total hydrocarbon concentration in the stack emissions. The 34-ppm limit is calculated on the basis of 50 percent excess air, which then requires that the actual readings from the flame ionization detector be corrected to 50 percent excess air before the measured concentration of total hydrocarbons can be compared to the limit calculated above. This correction was calculated using the equation in Section 503.63(f)(iv):

$$\text{Correction factor} = \frac{14}{21 - Y}$$

Where:

Y = percent oxygen in combustion gases

The average total hydrocarbon concentration reading for the hypothetical facility was 37 ppm, at 10 percent excess oxygen. This total hydrocarbon concentration reading was corrected as follows:

$$\text{THC}_{(\text{corrected})} = 37 \text{ ppm} \times \frac{14}{21 - 10}$$

$$\text{THC}_{(\text{corrected})} = 47$$

Therefore, in this example, the facility exceeds the 34 ppm total hydrocarbon limit.

The owners and operators of the hypothetical facility could be expected to conduct air dispersion modeling to obtain a site-specific dispersion factor

for inclusion in the equations for cadmium, chromium, lead, mercury, and total hydrocarbons. If air dispersion modeling were conducted, the owners and operators would need site-specific information, including:

- Stack exit diameter,
- Stack exit gas temperature,
- Stack exit gas velocity,
- Adjacent building dimensions,
- Characteristics of the area around the facility to determine if the urban or rural modelling option should be used and whether any terrain features need to be considered, and
- Meteorological data from a nearby meteorologic station or airport.

With the site-specific values for the above parameters, the owner or operator would use the ISCLT model to obtain a site-specific dispersion factor of 10.10 micrograms per cubic meter per gram per second. Therefore, the total hydrocarbon limit is re-calculated for the site-specific dispersion factor to obtain 5.0 ppm concentration. The hypothetical facility now would meet the total hydrocarbon limit because the actual reading from the flame ionization detector corrected to 50 percent oxygen was 47 ppm.

The site-specific dispersion factor was also used to re-calculate the allowable sludge concentrations for the following three pollutants:

Pollutant	Re-calculated numerical limit (mg/kg)	Measured sludge concentration (mg/kg)
Cadmium.....	2.79	9.54
Chromium.....	363.57	275.91
Lead.....	197.01	182.04

These calculations show that the hypothetical facility would now meet its pollutant limits for lead and chromium, but not for cadmium. The owners and operators would be, therefore, likely to conduct a test of the incinerator to determine the facility-specific control efficiency for cadmium. After performing the tests for the hypothetical facility, the average sludge-to-stack emissions removal efficiency was found to be 79.0 percent for cadmium. The numerical limit for cadmium was then re-calculated, using the actual control efficiencies and the site-specific dispersion factor of 10.10 micrograms per cubic meter per gram per second to yield:

Pollutant	Re-calculated concentration (mg/kg)	Measured sludge concentration (mg/kg)
Cadmium.....	4.64	9.54

This calculation indicated that the concentration of cadmium in the sludge was still above the re-calculated numerical limit. The owners or operators would have to take some action or combination of actions to bring the incinerator into compliance. Among the actions they could consider to reduce the actual sludge concentration would be applying more stringent pretreatment limits or:

- Restricting the feed to the incinerators to lower the sludge feed rate (SF) in the equation;
- Increasing the incinerator control efficiency by installing a more efficient air pollution control system; or
- Increasing the stack height, the stack exit temperature, or the stack exit

velocity to reduce the value of the site-specific dispersion factor in the equation.

If the owners or operators decided to upgrade the air pollution control system, however, they would have to retest the incinerator to obtain new emission control efficiencies.

If the facility had encountered difficulty in meeting the total hydrocarbon concentration limit, several corrective actions would be possible:

- Optimize the incinerator operation to obtain higher combustion temperatures and higher excess air rates to improve combustion of the organics in sludge;
- Reduce the sludge feed rate and the fuel rate to lower the total gas flow rate;
- Install an afterburner to further burn the excess total hydrocarbons and lower the concentration to an acceptable level; or
- Increase the stack height, stack exit temperature, or stack exit velocity to reduce the value of the site-specific dispersion factor.

Stack Height Option

The Agency is soliciting comments on whether to deny owners and operators of incinerators an opportunity to raise the height of their stacks, after the effective date of the rule, as the means of complying with the numerical limits in the rule. Raising the stack height increases the amount of dispersion, thereby reducing the concentration of the pollutants that reach the MEI. However, increasing the height of stacks does not reduce the mass emissions of the pollutants. Therefore, national cancer incidence (the number of cancer cases due to the pollutants being emitted) may not change significantly, if owners or operators choose to meet these requirements by merely increasing the height of their stacks.

Today's proposed regulatory approach is designed to limit the exposure of the MEI to a level that does not exceed an incremental carcinogenic risk of 1×10^{-5} . The legislative history of section 405 of the CWA directs the Agency to establish numerical limits that protect the health of individuals or populations which are at higher risk than the population as a whole (Cong. Rec., S1624, October 16, 1986). If, in complying with this risk level, all incinerators in the regulatory universe install pollution control equipment (such as after-burners and wet ESPs), EPA's analysis shows that, in addition to protecting the MEI, reductions would incur in the total number of projected cancer cases (from 12 to 3) as well as the number of projected adverse lead health effects (from 5,800 to 800).

However, the possibility exists that, in lieu of installing pollution control equipment to meet the metal and hydrocarbon limits, some owners or operators would only raise the height of their incinerators' stacks to comply with the pollutant limits. While such an approach would protect the MEI to the 1×10^{-5} risk level, it would not reduce the projected number of cancer cases (incidence) nationwide as much as the installation of treatment technology. How much reduction could be expected would depend on the number of facilities choosing to use pollution control equipment rather than merely increasing the height of the stacks. EPA has no information at this time indicating whether some, all, or none of the facilities that cannot meet the proposed requirements would choose stack height increases over the use of air pollution control equipment. Factors involved in that local determination include whether it is structurally possible to raise the height of the stacks, comparable costs, local citizen concerns, and State and local requirements. EPA will try to gather more information and requests technical data and public comments on the environmental and human health impacts, and the feasibility and relative cost, of stack height increases versus the installation and use of pollution control equipment.

In addition, the Agency invites public comments on whether the final rule should reflect an alternative approach and be directed at not only the MEI's risk, but should also be directed toward reducing the projected nationwide cancer incidence associated with incinerator emissions. The Agency further invites comments on whether specifying compliance methods is consistent with Section 405 of the CWA.

The Agency is concerned that refusing credit for stack height increases puts EPA in the anomalous position of permitting dispersion credit for existing tall stacks, while denying credit to others for stack height increases, without any clear rationale for distinguishing the two cases. Consequently, the proposal allows for the calculation of a dispersion factor based on the actual height of the stack. However, the Agency invites comments on the alternative of whether to include, in this and other rules, the alternative of imposing a stack height ceiling of approximately 25 meters for all incinerators (e.g., tall enough to prevent down wash) for the purposes of determining compliance with standards.

While dispersion credit for stack emissions is granted under certain conditions under the Clean Air Act

(Section 123), the extent of credit is limited. The intent and practice of granting such credit has been with regard to criteria pollutants (i.e., particulates, ozone, nitrogen oxides, sulfur dioxide, lead, and carbon monoxide), not for many of the potentially toxic air pollutants emitted from sewage sludge incinerators, municipal solid waste combustors, and hazardous waste incinerators.

Finally, in setting requirements for technology-based effluent standards under other sections of the CWA, the Agency does not allow the dilution of pollutants as a means of pollution control. EPA requests comment on the basis of such a prohibition under Section 405.

Compliance

The Agency projects that 122 of 194 incinerator facilities will fail to comply with today's proposed numerical limits. Some of the facilities may meet the numerical limits without additional air pollution control devices, if owners or operators can demonstrate (e.g., by air dispersion modeling or by a performance test of the incinerators) that dispersion factors other than those in Table 9 of the proposed rule or the control efficiencies for metals other than those in Table 10 of the proposed rule are applicable to their facilities.

Eligible POTWs that comply with the proposed requirements in this rule would be authorized to issue removal credits for the compounds under § 503.72 (Tables 11 and 12) of the rule. In addition to the metals (e.g., arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel) for which numerical limits are proposed in this part, removal credit authority would be available for metals that have been determined to pose no hazard (e.g., copper, selenium, and zinc) when incinerated. Removal credit authority would also be available for the organic pollutants that are listed in IRIS (see Table 11 in § 503.72 of the proposed rule). The Agency is limiting removal credit authority to organic pollutants listed in IRIS because the human health criterion (weighted Q_1^* value) for total hydrocarbons was based on the existing Q_1^* values listed in IRIS.

Section 405(d)(2)(D) of the CWA requires that compliance be as expeditious as practicable, but in no case later than 1 year after promulgation of the regulations, unless construction is required, in which case compliance is to be within 2 years. The Agency urges all sewage sludge incinerator facility owners or operators to evaluate whether their facilities would be able to comply

with the numerical limits included in today's proposal. While incinerator performance tests are not required in this proposal, a facility may wish to conduct a performance test to develop site-specific data demonstrating that it complies with the requirements of the regulation. Based on the Agency's experience, the time required to plan, conduct, and evaluate the results of incinerator tests may extend beyond a year. Therefore, if owners or operators decide to test their incinerators, waiting until final promulgation of this rule before starting to plan a performance test may not allow sufficient time to demonstrate compliance.

Incineration—Management Practices (§ 503.64)

Combustion Zone Temperature

Today's proposal specifies that incinerators not exceed a temperature of 898 degrees Celsius (1,650 degrees Fahrenheit) in the combustion zone. This value would apply unless the owners or operators conducted a performance test of the incinerator, in which case the temperature recorded during the test would apply. The temperature proposed is based on EPA-sponsored sewage sludge incinerator tests and data from the tests of other sewage sludge incinerators. These data are included in the "Technical Support Document: Incineration of Sewage Sludge" (Reference number 56).

There is considerable evidence that the emission of metals increases when temperatures exceed those designed for the incinerator. Evaluation of the incinerator tests discussed earlier indicate that, for several metals, the control efficiencies of the incinerators and air pollution control systems decrease as the combustion zone temperature increases. The relationship between combustion zone temperature and control efficiency is particularly significant for lead, arsenic, and cadmium. Therefore, EPA is proposing a limit on the maximum temperature in the combustion zone of sludge incinerators to control metal emission levels.

Oxygen Content of the Exit Gas

Today's proposal specifies that the oxygen content of the exit gas, is not to exceed 12 percent (dry basis) for multiple hearth incinerators, 7 percent (dry basis) for fluidized bed incinerators, 9 percent (dry basis) for electric incinerators, and 12 percent (dry basis) for rotary kiln incinerators. These values would apply unless the owners or operators conducted a performance test of the incinerator. If a performance test

of an incinerator is conducted, the values recorded during the test would apply.

The Agency is proposing to limit the oxygen content of the exit gas because too much excess air causes an increase in the total amount of suspended particulates in the exhaust gas. Twelve percent oxygen, on a dry gas basis, corresponds to an excess air (oxygen) level of approximately 150 percent. The 12 percent (dry basis) oxygen limit for multiple hearth incinerators is based on generally accepted design and operating principles for this type of incinerator (Reference numbers 62 and 35). In addition, results from the four sludge incinerator tests indicate that lead emissions from multiple hearth furnaces become excessive at excess air rates over 150 percent (12 percent oxygen). Seven percent oxygen, on a dry gas basis, for fluidized bed incinerators corresponds to approximately 50 percent excess air. Operating experience indicates that this limit is typical for fluidized bed incinerators (Reference numbers 35 and 62). Electric furnaces are to be controlled to a maximum oxygen limit of 9 percent, on a dry gas basis. This limit corresponds to an excess air rate of approximately 70 percent, a value that was obtained from the design and operating experience of a manufacturer of an electric furnace (Reference number 67).

No information on the appropriate excess air level for rotary kiln incinerators was available to the Agency. Therefore, the 12 percent oxygen limit established for multiple hearth furnaces is proposed for any rotary kiln incinerators burning sewage sludge.

EPA is seeking comments on whether values specified for the combustion zone temperature and the oxygen content of the exit gases are reasonable for sludge incinerators. The Agency is soliciting data from tests that may support or question the proposed values.

Air Pollution Control Systems

EPA is not requiring that the air pollution control systems for sewage sludge incinerators maintain a specific minimum pressure drop. Rather, EPA is requiring that owners or operators install the appropriate air pollution control systems and instrumentation and that the equipment be operated to maintain the numerical limits for metals that EPA is proposing today.

Most sewage sludge incinerators have wet scrubbers. The major variable affecting particulate emissions from sewage sludge incinerators is the operating pressure drop of wet scrubbers. Particulate emission rates

also are affected by the design of the incinerator, the type and design of the control device used, the characteristics of the sludge that is incinerated, and the method of operation of the incinerators and control devices.

The particulate removal efficiency of a given wet scrubber increases as the pressure drop of the scrubber increases. Emission of particulates and metals will increase as the pressure drop is decreased for a given incinerator and a given scrubber. Proper operation and maintenance of emission control devices is a key factor in minimizing particulate emissions from sewage sludge incinerators. However, the appropriate operating parameters are incinerator-specific and cannot be generalized on a nationwide basis. Therefore, EPA is not requiring that a specific minimum pressure drop be maintained. Instead, owners or operators must install the appropriate air pollution control systems and instrumentation and must operate the equipment to meet the numerical limits for metals that EPA is proposing today.

Other Management Practices Considered

EPA also considered specifying minimum combustion zone and exit temperatures for combustion gases from sludge incinerators to ensure adequate destruction of organic pollutants. This requirement would have been appropriate if the Agency had proposed setting concentrations for specific organic pollutants with an assumed DRE for the organic pollutants. However, since the Agency has decided to propose the continuous monitoring of total hydrocarbons to measure compliance, specifying minimum combustion system temperatures is not required. As a consequence of requiring all sewage sludge incinerators to meet a total hydrocarbon emission concentration, minimum combustion temperatures will have to be maintained for adequate organic destruction.

The Agency also considered specifying minimum excess air rates to ensure adequate destruction of organic pollutants. A minimum level of excess air (oxygen) is required in an incinerator to obtain complete combustion of organic compounds. This minimum requirement is different for the various incinerators used for the incineration of sewage sludge. Multiple hearth incinerators usually require higher levels of excess air to destroy organic compounds than fluidized bed and electric incinerators. However, because the Agency is proposing that owners and operators continuously monitor for

total hydrocarbons in the exhaust gases, sludge incinerators will need to provide sufficient excess air to achieve adequate organic pollutant destruction to meet the total hydrocarbon limits.

The proposed rule does not specify any special requirements for scrubber water, which is usually treated to reduce its solids content. Fly ash residue produced during scrubber water treatment is de-watered and disposed of with the incinerator bottom ash. After solids are removed, treated scrubber water effluent is generally recycled back to the wastewater treatment plant influent. Scrubber water effluent is treated along with the wastewaters, and, when discharged, must meet the facility's effluent limits. Therefore, the scrubber water should not pose risks to human health or the environment.

Monitoring, Record Keeping, and Reports (§§ 503.81 and 503.86)

Owners and operators of sewage sludge incinerators are to measure the concentrations of arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel in accordance with the frequencies established for the treatment work and with the sampling and analysis procedures in § 503.81. In addition, owners and operators must continuously monitor the total hydrocarbon concentration in the incinerator stack gases, the rate at which sewage sludge is fed to an incinerator, the combustion temperature in the incinerator, the oxygen content of the exit gas, and the pressure drop across the air pollution control system, if applicable. The Agency's rationale for these requirements was explained earlier in the discussion of the requirements for sewage sludge incinerators.

The records to be kept are those of the parameters to be monitored as well as the results of any site-specific air modeling or performance tests conducted. These records are to be kept for 5 years, the period of time specified in the State program management regulations (see 40 CFR Part 501). Reports are to be submitted whenever one of the following occurs:

- The combustion temperature in the incinerator remains outside the allowable range for 15 minutes or longer;
- The oxygen content of the exit gas from the incinerator stack remains outside the allowable range for 15 minutes or longer;
- The pressure drop across the air pollution control device exceeds the allowable drop for longer than one hour, if applicable.

The time periods specified are those required in amendments to the NSPS for sewage sludge incinerations. The rationale for the time periods may be found in 53 FR 39412 (October 6, 1988).

In addition to the requirements mentioned above, reports are to be submitted at the frequencies specified in § 503.81(c) for the total hydrocarbon concentration in the stack gases of the incinerator and for the sewage sludge feed rate.

Removal Credits (Subpart H)

Pollutant-contaminated industrial wastewater that is discharged to POTWs can inhibit or upset POTW treatment systems and pass through the facility to surface waters or into the sludge generated by these facilities. To prevent this interference, pass through, and sludge contamination, Congress directed EPA to establish national pretreatment standards for industrial discharges into POTWs (see section 307(b)(1) of the CWA, 33 U.S.C. 1317(b)(1)). These pretreatment standards limit the amount of a pollutant that plants in an industrial category may discharge into a POTW. However, to avoid redundancy in treatment capacity, the Act authorized the POTW to revise a categorical pretreatment standard for an industrial user by adjusting the amount of a pollutant the plant may discharge to the POTW. The revision in the categorical pretreatment standard is based on the percentage of the pollutant removed by the POTW. A "removal credit" is the difference between the categorical pretreatment standard and the revised pretreatment standard. A removal credit allows the POTW's industrial user to discharge greater quantities of a particular pollutant than would otherwise be allowed by the categorical pretreatment standard. The CWA authorizes these revisions in the categorical pretreatment standards provided that certain criteria are met. Among these criteria is a requirement that the increased discharge to the POTW by the industrial user does not cause a deterioration in sludge quality or interfere with sludge use or disposal.

In 1984, EPA issued rules implementing the pretreatment removal credits provision (40 CFR 403.7). However, in a 1986 response to a challenge by the Natural Resources Defense Council, the United States Court of Appeals for the Third Circuit found the regulation invalid (*Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency*, 790 F.2d 289, 3d Cir., 1986). EPA has now amended the regulations to respond to all but one of the Third Circuit's four

holdings (52 FR 42434, November 5, 1987). Its fourth holding was that EPA may not authorize POTWs to grant removal credits to their industrial users until EPA promulgates the comprehensive regulation required by section 405(d). Thus, upon promulgation of regulation that is proposed today, POTWs that manage their sludge by the use or disposal methods covered in the proposed rule (land application, distribution and marketing, disposal in monofills and on surface disposal sites, and incineration) may apply to EPA for removal credit authority. EPA may grant such authority to any POTW that complies with the procedural and substantive requirements of the removal credits regulation and this part. Moreover, EPA may grant such authority to any POTW that disposes of its sewage sludge in a MSWLF in compliance with 40 CFR Part 258.

EPA's removal credit regulation (40 CFR 403.7) provides that, subject to the conditions of the regulation, any POTW receiving wastewater from an industrial user to which a categorical pretreatment standard applies, at its discretion, may grant a removal credit to reflect removal of pollutants specified in the categorical pretreatment standard by the POTW. A POTW is authorized to grant a removal credit if five conditions are met. First, the POTW must receive authorization to grant removal credits from EPA or the authorized approval authority in an NPDES State with an approved State pretreatment program. Next, the POTW must demonstrate and continue to achieve consistent removal of pollutants. Third, the POTW must have an approved pretreatment program. Fourth, the granting of a removal credit must not cause the POTW to violate local, State, or Federal sludge management requirements for the sludge management method chosen by the POTW. Finally, granting removal credits must not cause a POTW to violate its NPDES permit conditions or limitations (40 CFR 403.7(a)(3)).

Pollutants for Which Removal Credits May Be Authorized (§ 503.72)

Provided a POTW complies with all other applicable requirements, removal credits would be available for the pollutants listed below.

The 65 Pollutants Regulated in One or More Use or Disposal Methods

If a POTW uses or disposes of its sludge through one of the methods for which standards are developed in today's proposal and meets the numerical limits and management practices for that use or disposal

method, the POTW would then be authorized to grant a removal credit for the pollutants regulated in the practice employed by the POTW.

Many facilities may use one or more methods for disposing of their sewage sludge. EPA has concluded that certain pollutants may pose a greater threat to human health and the environment in particular use of disposal methods. For POTWs using one or more use or disposal methods, removal credits would only be available if the concentration of the pollutants do not exceed the lowest concentration for the use or disposal method employed by the POTW.

The 17 Pollutants Which EPA Examined Without Establishing Numerical Limits

Removal credits would also be available for 17 pollutants in one or more use or disposal methods because, at the highest concentrations shown, the pollutant did not pose an unreasonable risk. When a POTW uses or disposes of its sludge through one of the methods for which a pollutant was evaluated for adverse effect in accordance with the requirements of this part, a removal credit would be authorized for that pollutant. However, a removal credit would only be available so long as the concentration of the pollutant in the POTW's sludge did not exceed the numbers evaluated by EPA for adverse effects. These values are included on Table 12 in § 503.72 of the proposed rule. In most cases, these concentrations represent the very highest values, in excess of expected current sludge quality levels. EPA solicits comment on the appropriateness of the capping concentrations of these pollutants for the purpose of removal credits. EPA also solicits data concerning concentration of these pollutants in sludge.

Pollutants Disposed of in MSWLFs

A POTW that disposes of its sewage sludge in a MSWLF and meets the requirements of 40 CFR Part 258 would be eligible to issue removal credits for the pollutants in its sludge. EPA has made the determination that the requirements in 40 CFR Part 258 are adequate to protect human health and the environment from any reasonably anticipated adverse effects of each pollutant.

Some POTWs may employ other use or disposal methods in combination with disposal in a MSWLF. Under those circumstances, EPA is considering limiting removal credits to those pollutants for which specific numerical limits have been established in order to encourage the maximum beneficial reuse of sewage sludge. The Agency

remains concerned that such an approach may have the opposite effect. It may encourage POTWs to dispose of all their sludge in landfills, rather than using some of their sludge in a beneficial manner. The Agency solicits comment on this concern.

Hazardous Sludge

EPA has also determined that compliance with the requirements in 40 CFR Parts 261 through 268 (promulgated under Subtitle C of RCRA) when disposing of hazardous sludge will constitute compliance with Section 405 of the CWA. Thus, this type of sludge disposal will be a regulated disposal method under the comprehensive section 405 system. It could be argued that hazardous concentrations of pollutants disposed of under RCRA Subtitle C, by definition, do not interfere with sludge use and disposal and, therefore, removal credits should be available for such pollutants. However, in the case of pollutant concentrations which result in a hazardous sludge, allowing industrial users to obtain removal credits for such pollutants would be inconsistent with statutory objections of improving sludge quality and encouraging beneficial reuse. The availability of removal credits would permit the industrial user to reduce its level or treatment, shifting the removal burden to the POTW and ensuring that the sludge was unavailable for a beneficial use. EPA does not intend that its comprehensive sludge management program and the availability of removal credits encourage any increase in the generation of highly contaminated sludge.

Phenolic Compounds

EPA is also requesting comment on another issue. Certain phenolic compounds (e.g., parent phenol) are regulated for a number of different use and disposal methods but are determined not to represent a threat to human health and the environment for other methods. Consequently, removal credits would be available for those pollutants. The Agency notes that its pretreatment standards regulated 4AAP, an indicator for parent phenol and certain other phenolic compounds. The Agency is considering whether or not removal credits should be available for the family of compounds represented by 4AAP. Only the parent phenol and certain other phenolic compounds were the subject of an environmental assessment. EPA believes that removal credits should be available only for that portion of 4AAP that measures the specific compounds which were subject to an environmental assessment. The

Agency requests information on whether 4AAP will consistently reflect the levels of the different phenolic compounds present in the wastewater.

Monitoring, Record Keeping, and Reports (Subpart I)

Purpose (§ 503.80)

This subpart contains the minimum monitoring, record keeping, and reporting requirements necessary to ensure that treatment works, users, and disposers comply with the requirements of the rule. The Agency is requesting public comment on the appropriateness of placing these requirements with the Part 503 technical standards. As an alternative, the Agency is considering the consolidation of the record keeping and reporting requirements in today's proposal with the State program management requirements (40 CFR Part 501) and with the NPDES permitting requirements (40 CFR Parts 122 through 124). Such an approach would consolidate requirements that are primarily administrative. However, the argument can also be made that, along with the monitoring requirements, record keeping and reporting requirements are an integral part of the technical standards.

The Agency is proposing that treatment works monitor a representative sample of their sewage sludge for two classes of pollutants. The first class entails pollutants with specific numerical limits for the use or disposal method employed by the treatment work (i.e., 25 pollutants for the land application of sewage sludge, 22 pollutants for the distribution and marketing of sewage sludge, 18 pollutants for the disposal of sewage sludge in monofills and on surface disposal sites, and seven pollutants for the incineration of sewage sludge). The second class contains those pollutants listed on Table 12 of § 503.72, i.e., those pollutants for which the POTW may grant a removal credit.

Monitoring frequency is based on the wastewater flow of the facility. Facilities that have a wastewater flow of less than one million gallons per day (mgd) would monitor once a year. Those with a wastewater flow of 1 to 10 mgd would monitor quarterly. Those with a wastewater flow over 10 mgd would monitor monthly. The Agency is considering alternatives such as monthly monitoring the first year and then specifying alternative frequencies in a treatment work's permit, based on the variability of the first-year's monitoring results. Sludge with pollutant concentrations that constantly fluctuate

would be monitored more frequently than sludge with uniform pollutant concentrations. Another approach that the Agency is considering, is to specify monitoring frequencies based on the industrial flow into the facility.

Permitting authorities may impose more comprehensive and more frequent monitoring requirements than those in today's proposal. Nothing in this subpart precludes the establishment of more stringent requirements. The Agency encourages permitting authorities to recommend alternative monitoring and reporting frequencies as part of their comments on today's proposal.

The discussion included in this section of the preamble is limited to the general requirements that are applicable to treatment works, irrespective of the method by which they use or dispose of their sewage sludge. Monitoring, recording keeping, and reporting requirements that are specific to a particular method were discussed in connection with that method.

General (6.503. 81)

Sampling Protocols

EPA is proposing that treatment works collect and analyze their sewage sludge samples in accordance with "Sampling Procedures and Protocols for the National Sewage Sludge Survey," EPA, Office of Water Regulations and Standards, March 1988 (Reference number 55). The sampling procedures and protocols included in this document were compiled specifically for the National Sewage Sludge Survey described elsewhere in this preamble. The procedures are specific to sewage sludge and describe the type of representative samples to be collected, sample locations, sample collection procedures, equipment to be used, procedures for handling liquid and solid samples, and procedures for sample handling and preservation.

Prior to the Survey, these procedures were extensively reviewed within the Agency and by the Association of Metropolitan Sewerage Agencies, Association of State and Interstate Water Pollution Control Administrators, Chicago Metropolitan Sanitary District, and the Iowa Department of Natural Resources. In conducting the Survey, EPA has found that the procedures worked well, irrespective of the size and complexity of the plant sampled. EPA believes that these standard procedures will improve the quality and consistency of data and ensure the integrity of samples collected prior to analysis.

These procedures are also found in Chapter 2 of "POTW Sludge Sampling and Analysis Guidance Document"

(Reference number 87). This document includes other relevant information that POTWs may find helpful.

Analytical Methods

The preferred analytical methods for determining the concentration of organic and inorganic compounds in sewage sludge and for the determining the fraction of total, dissolved, and suspended solids in sewage sludge are listed in "Analytical Methods for the National Sewage Sludge Survey," Office of Water, Sample Control Center, March 1988 (Reference number 51). These procedures are also found in Chapter 3 of "POTW Sludge Sampling and Analysis Guidance Document" (Reference number 87).

Methods 1624 and 1625 are isotope dilution, gas chromatography-mass spectrometry (GC/MS) methods for analyzing volatile and semi-volatile organic pollutants amenable to GC/MS. Isotope dilution uses a stable, isotopically labeled analog as an internal standard for the analysis of a compound. As an alternative to Methods 1624 and 1625, EPA lists Methods 624 and 625 found in 40 CFR Part 136. However, Methods 624 and 625 do not have the same precision and accuracy as do Methods 1624 and 1625. Methods 624 and 625 can not distinguish between similar compounds in a sludge matrix. Therefore, the Agency is soliciting public comment on whether it should limit acceptable methods to 1624 and 1625.

Method 1618, used for pesticides, is undergoing further validation as part of the National Sewage Sludge Survey. EPA requests laboratories that have used Method 1618 to provide the Agency with an evaluation of the method in conjunction with their comments on today's proposal. Any changes in Method 1618 will be published in the "Federal Register" as part of the Notice on the results of the National Sewage Sludge Survey.

The methods for analyzing inorganic pollutants in "Analytical Methods for the National Sewage Sludge Survey" are fully validated methods and were compiled from:

- "Methods for Chemical Analysis of Water and Wastes," EPA, Cincinnati, OH, March 1983 (EPA-600/4-79-020), currently available from National Technical Information Service, Springfield, VA 22161 (PB84-128677); and
- "Test Methods for Evaluating Solid Waste," EPA, Washington, DC, November 1986 (SW-846), currently available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402.

The methods for analyzing pathogenic bacteria, animal viruses, fecal coliform, fecal streptococci, protozoa, helminth ova, volatile solids, volatile suspended solids, and SOUR were described in the discussion of the pathogen and vector attraction reduction requirements. The equation for calculating the percent volatile solids reduction was also described in that subpart of this part of the preamble.

The Agency is seeking public comment on the proposed methods for measuring the parameters included in today's proposal. Alternative methods will be carefully evaluated and may be included in the final rule.

PART X: IMPLEMENTATION OF 40 CFR PART 503

Clean Water Act

The 1987 amendments to the Clean Water Act (CWA) included significant changes to section 405 of the CWA with regard to the implementation of the technical standards for the use and disposal of sewage sludge. Prior to the 1987 amendments, the CWA required that EPA develop standards for the use and disposal of sewage sludge, but did not specify whether the standards were to be implemented through permits and, if so, under what authority. Traditionally, National Pollutant Discharge Elimination System (NPDES) jurisdiction arises when there is a discharge of pollutants to navigable waters from a point source. Thus, there was some question about the applicability of NPDES permits to regulate sewage sludge disposal that did not involve discharges to navigable waters. Likewise, other permits either are media-specific (e.g., permits issued under the Clean Air Act) or regulate particular substances or methods of disposal (e.g., Subtitle D of the Resource Conservation and Recovery Act—RCRA). Therefore, they were also ill-equipped to comprehensively regulate across all media the use and disposal of sewage sludge.

The 1987 amendments establish a program with the objective of protecting public health and the environment from the adverse effects of pollutants in sewage sludge. This is to be accomplished by developing technical standards that establish pollutant limits and management practices for each use and disposal method and implementing these standards through permits. The 1987 amendments make it plain that the technical standards are to be implemented through NPDES permits, unless the standards are included in a permit issued either under one of the listed Federal programs or by an

approved State sludge program. Section 405(f)(1), as amended, provides:

Through Section 402 Permits.—Any permit issued under section 402 of this Act to a publicly owned treatment works or any other treatment works treating domestic sewage shall include requirements for the use and disposal of sludge that implement the regulations established pursuant to subsection (d) of this section, unless such requirements have been included in a permit issued under the appropriate provisions of subtitle C of the Solid Waste Disposal Act, part C of the Safe Drinking Water Act, the Marine Protection, Research, and Sanctuaries Act of 1972, or the Clean Air Act, or under State permit programs approved by the Administrator, where the Administrator determines that such programs assure compliance with any applicable requirements of this section * * *

Thus the Act provides authority to implement the standards through NPDES permits where the standards are not included in a Clean Air Act permit, a RCRA subtitle C permit, a Marine Protection, Sanctuaries, and Research Act permit, an Underground Injection Control permit under the Safe Drinking Water Act, or an approved State program permit. It is clear that permit coverage among the programs is to be complementary, not duplicative. However, it is also clear that permit coverage of publicly owned treatment works (POTWs) and other treatment works is to be comprehensive and that no facilities are to go unpermitted because they fall outside the traditional jurisdiction of media-specific programs. If the POTW or other treatment work treating domestic sewage does not have an NPDES permit or any of the other permits listed in section 405(f)(1), the CWA authorizes the issuance of a permit solely to implement the sludge standards (see CWA section 405(f)(2)).

In addition to the requirement that the standards be implemented through permits, the other important provision of section 405(f)(1) allows a State to issue permits to implement the technical standards where the State permit program has been approved by the Administrator. The Administrator may approve State programs that he finds will assure compliance with the requirements of section 405.

Regulations For Implementation Of The Technical Standards And For State Program Approval

EPA proposed State sludge management program regulations that appeared in the *Federal Register* on February 4, 1986 (51 FR 4458). These regulations set forth minimum program requirements and procedures for States to obtain approval of their sludge management programs. These

regulations would have required that the States develop sludge management programs which would assure that sludge use and disposal complied with the technical standards. Because these regulations were proposed prior to the Water Quality Act (WQA) of 1987, they did not require that the States develop permit programs.

On March 9, 1988, EPA proposed new State program and permitting requirements (53 FR 7642). These regulations will implement the WQA requirement that permits issued to POTWs and other treatment works treating domestic sewage contain the sludge standards and the requirement that EPA promulgate procedures for the approval of State programs. The purpose of the State program and permitting rules is to provide the implementation framework for the sludge technical standards proposed today by: (1) Providing permit conditions to incorporate the standards into permits, as well as additional requirements to track compliance with the standards; and (2) setting approval requirements for State sludge programs so that they can implement the Section 405 requirements. The March 9, 1988 proposed rules contained three principal sections. First, the proposed rules would revise the existing NPDES permitting regulations at 40 CFR Part 122 and 124 to include sludge conditions in NPDES permits. Second, the proposed rules contained revisions to 40 CFR Part 123 for States with NPDES authority that wish to modify their existing NPDES program to include the regulation of sewage sludge. Third, the March 9, 1988 proposal contains a separate section with requirements for State sludge programs that are not based on NPDES. Thus, these regulations reflect the CWA's stipulation that the sludge standards may be included in any of a number of permits under different programs, so long as they are addressed in a permit. The regulations do not require that States implement the sludge standards through the NPDES program. Where EPA is the permitting authority (i.e., where the State has not sought and obtained approval of its sludge program), the sludge requirements will be primarily implemented through NPDES permits, unless the requirements are contained in one of the other listed Federal permits. These regulations are scheduled to be promulgated in April 1989.

Requirements Prior To Promulgation Of The Technical Standards

The WQA also requires that, prior to promulgation of the technical standards, NPDES permits issued to POTWs are to

contain sludge conditions. Moreover, the Administrator is authorized to take other appropriate measures to protect public health and the environment from the adverse effects of sewage sludge (see CWA section 405(d)(4)). In response to this call for controls before promulgation of the technical standards, EPA has developed an interim strategy for sludge permitting. The "interim" or "pre-technical standards" sludge program for implementing section 405(d)(4) of the CWA is contained in a document entitled "Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs" (see Notice of Availability of this document, 53 FR 1987, May 31, 1987). Once the technical standards proposed today are promulgated, the use and disposal of sewage sludge will be regulated by those standards and by the permitting and State program requirements. The "interim" program will continue to apply to those facilities, pollutants, and use and disposal methods not covered by the technical standards. EPA's authority to impose permit limits developed on a case-by-case basis will continue with respect to pollutants and management practices not regulated by the technical standards.

EPA is sensitive to the problems that may arise if "interim" conditions significantly differ from those that will be required by the technical regulations. Thus, in developing its interim permitting strategy, the Agency has sought to adopt approaches which are consistent with the anticipated direction of the technical standards. In addition, a primary emphasis of the interim strategy will be ensuring compliance with existing federal requirements, such as 40 CFR Part 257. Generally, additional limits will be required only for POTWs with known or suspected sludge use or disposal problems. The recommendations for additional limits are based on existing federal guidance and State requirements, and consist in most cases of best management practices, rather than numerical limits. EPA has adopted this approach in recognition that such measures are interim only. EPA's primary objective under section 405(d)(4) remains the protection of public health and the environment.

The anti-backsliding provision of section 402(o) of the CWA does not apply to sewage sludge use and disposal activities. This means that if the permit contains limits developed on a case-by-case basis (i.e., based on the permit writer's best professional judgement) under EPA's interim sludge permitting strategy which are more stringent than

subsequently promulgated Part 503 standards, the reissued permit could include limits based on the less stringent Part 503 standards rather than the more stringent case-by-case interim limit. This would be true not only for pollutant concentration limits, but also for monitoring or testing requirements or management practices in Part 503. Because the Part 503 standards (and permit conditions implementing them) must protect public health and the environment, from reasonably anticipated adverse effects, "backsliding" from more stringent interim limits should not result in any significant adverse public health or environmental effects.

PART XI: BENEFITS AND COSTS OF THE PROPOSED RULES

Administrative and Statutory Requirements

As explained in Part II of this preamble, section 405(d) of the Clean Water Act (CWA), directs EPA to publish information on the costs of sludge use and disposal. In addition to this legislative requirement, Executive Order 12291 directs EPA to analyze and consider the cost and impact associated with this proposed regulation. This Executive Order, signed in February 1981, addresses various concerns about Federal regulations, including a requirement to develop a Regulatory Impact Analysis for all major regulations, which are defined as those that impose an annual cost to the economy of \$100 million or more or that meet other economic impact criteria. Based on the Agency's estimates of the incremental costs of complying with the proposed regulation, the Agency considers today's action to be a major rule as defined in Executive Order 12291, and has prepared an extensive analysis of the benefits, costs, and other impacts associated with the proposed regulations. This analysis, "Regulatory Impact Analysis of the Proposed Regulations for Sewage Sludge Use and Disposal" (hereafter referred to as the RIA), is part of the record for this rulemaking and copies are available for review and comment (see Part XIII on availability of technical information). The RIA was transmitted to the Office of Management and Budget (OMB) with the notice of proposed rulemaking.

OMB's comments are presented in the public record for this rulemaking.

Overview of the RIA

The RIA presents an evaluation of the costs, benefits, and economic impact associated with the proposed regulation. Although the proposed regulation applies to all treatment works except privately owned treatment works treating domestic sewage along with industrial waste and wastewater, the RIA pertains only to publicly owned treatment works (POTWs). This is due to the lack of data indicating the nature and extent of private ownership of such treatment works.

The analysis begins with an assessment of the sludge disposal methods currently used by POTWs and then evaluates the impact of new or additional requirements imposed by the proposed regulation. The RIA also presents the costs and impacts of three other regulatory options that the Agency considered. Each of the options reflects a separate set of regulatory requirements. The impacts of each of these three options are briefly discussed earlier in the preamble (Part VIII, see Table VIII-1) and are covered in detail in the RIA. The following discussion focuses only on the regulatory option that is the basis for today's proposed rulemaking.

The Agency's overall approach to the RIA recognizes that, in addition to compliance costs for testing, monitoring, record keeping, and other requirements, a POTW may be required to alter its current method of sludge use or disposal to achieve compliance with the regulation. These changes could include shifts to a new or different combination of disposal methods, installation or operation of pollution control equipment, or increased reliance on industrial pretreatment. The costs of these changes are evaluated for each of the use and disposal methods. The benefits associated with complying with the regulation in the form of reduced health risks are also evaluated. The RIA presents quantified estimates of these benefits, expressed as a reduction in as the number of cancer cases and other health effects.

There are more than 15,000 POTWs in the U.S. processing nearly 28 billion gallons of wastewater a day. POTWs provide various degrees of pollutant

removal depending on the level of treatment in place. The levels of treatment are generally described as pretreatment, preliminary treatment, primary treatment, secondary treatment, advanced treatment, and no discharge. The level of treatment employed in a given facility determines, in part, the purity of the plant's effluent and the quantity and pollutant content of the facility's sludge. The more than 15,000 POTWs in the United States generate an estimated 7.7 million dry metric tons of sewage sludge annually.

The proposed regulations are expected to cover 5,367 POTWs, which is an estimate of the facilities currently using the use and disposal methods that are specifically addressed by the proposed regulations. These facilities produce about 56 percent of the total sludge volume. Of the remaining POTWs, an estimated 6,664 (accounting for 41 percent of the total sludge volume) dispose of sludge in landfills that are specifically controlled by other statutory requirements and are covered in today's regulation by the requirements in proposed Part 258 of RCRA (see Part IX and Part XIV of the preamble). In addition, 3,274 POTWs use other disposal practices that will be addressed in future rulemakings.

Summary of Impacts of the Proposed Regulation

For the disposal practices covered by the regulation, the Agency projects incremental annual compliance costs of \$157.7 million (1987 dollars), or an average of \$5 per household served by these facilities. The total annual costs include costs for management practices (e.g., sludge testing, record keeping, emissions testing) and, in some cases, incremental costs for a change in the method of use or disposal. In addition, the regulation will result in benefits consisting of reduced effects on human health resulting from reduced exposure to pollutant contaminants. The Agency estimates that the benefits of this proposed rule will be an annual reduction of 9.5 cancer cases and 5,266 cases of other health effects. The proposed regulations are also expected to create certain environmental benefits as a consequence of the improved use and disposal practices. Table XI-1 is a summary of the costs and benefits for each disposal practice.

TABLE XI-1—SUMMARY OF COSTS AND BENEFITS ASSOCIATED WITH THE PROPOSED REGULATIONS

Disposal practice	Number of POTWS	Annual Incremental Cost (\$ million)	Human Health Benefits		
			Cancer cases avoided	Other health effects avoided	Total cases avoided
Land application.....	2,623	15.2	0.06	21	21.06
Distribution and marketing.....	106	7.8	0.02	56	56.02
Monofill.....	49	25.5	0.02	26	26.02
Surface disposal.....	2,395	5.5	(¹)	(¹)	(¹)
Incineration.....	² 194	103.8	9.4	5,163	5,172.40
Total.....	5,367	157.7	9.5	5,266	5,275.50

¹ Not estimated.² In lieu of the current legislation affecting ocean disposal of sewage sludge in the ocean, 25 POTWS currently known to dispose of sewage sludge in the ocean were re-categorized into incineration for purposes of the RIA.

It is important to note that the Agency is not projecting that specific facilities will discontinue their current practice and immediately undertake an alternative practice. Data pertaining to the manner in which specific facilities would react to the proposed regulations are not available. Instead, the compliance strategies for which costs were calculated represent an estimate of the incremental cost of compliance that POTWs face overall.

In light of the uncertainties associated with any particular POTW's compliance strategy, the Agency estimated the incremental cost of compliance as follows. For land application, the estimated compliance cost is based on either a shift to municipal solid waste landfills (MSWLFs) or a change in end uses and sludge processes (e.g., composting). For distribution and marketing, the costs represent a shift in practice to non-agricultural land application under a contractual arrangement or incineration for those POTWs that are not expected to be in compliance. For monofills, the costs reflect a shift to either co-disposal landfills (i.e., landfills accepting sludge and municipal waste) or incineration for the facilities estimated to be in non-compliance. For the facilities currently using sewage sludge surface disposal, the compliance costs reflect a shift to co-disposal in MSWLFs or to composting and non-agricultural land application. For the facilities that currently use incineration but are not expected to be in compliance, the costs are based on additional pollution control equipment.

The feasibility of pretreatment by industrial dischargers as a compliance alternative was also evaluated as part of the RIA. Depending on site-specific conditions, the effects of industrial pretreatment on sludge quality could be significant. The Agency currently lacks sufficient information to reach widely applicable conclusions regarding the

improvements to sludge quality (and, therefore, the ability to attain compliance) from locally-imposed, industrial pretreatment requirements.

In an effort to highlight the potential importance of pretreatment, the Agency conducted a limited number of case studies on the effect of industrial pretreatment on municipal sludge quality as part of the RIA. Pollutant removals were estimated for all industrial dischargers covered by categorical standards. Estimates were also made reflecting treatment levels beyond that represented by the standards. (The pretreatment case studies are described in the RIA.) The Agency found, in these particular cases, that an increase in industrial pretreatment provides a significant reduction in the amount of pollutants in the sludge. The portion of pollutant pounds removed from sludge in the case studies ranged from 6 to 96 percent. The reduction in pollutant levels from pretreatment enabled one of the case study POTWs to achieve compliance with the sludge disposal criteria.

The case studies' findings are limited by the site-specific nature of the analysis. The results are dependent on the type and size of the industrial dischargers. The analysis is also limited in that the improvements in sludge quality were based on removals for only a subset of pollutants in the sludge—those for which categorical standards have been established. Other pollutants that may be affected by local limits were not included in the case studies. Thus, industrial pretreatment could potentially be more of a solution to reducing pollutant levels in municipal sludge than is indicated by these case study results.

Limitations of the RIA

The regulatory analysis described here is limited by the general scarcity of current and reliable data on sewage sludge use and disposal methods and

pollutant concentrations in municipal sewage sludge. The analysis is also constrained by a lack of specific information as to how POTWs would react to resolve or eliminate compliance difficulties, particularly where changes in use of disposal methods are indicated. Lacking such detailed information, the Agency relies on a number of baseline assumptions pertaining to sludge volumes for each use or disposal method, the costs of existing methods, compliance with the proposed regulation, and potential shifts in methods that may occur. The RIA results, including incremental compliance costs, are strongly influenced by these analytical assumptions.

The most significant limitation is related to the scarcity of data concerning sewage sludge quality. In the absence of a comprehensive data base, and lacking facility-specific information about sludge quality, the Agency relied on an EPA study completed in 1981, "Fate of Priority Toxic Pollutants in Publicly Owned Treatment Works" (Reference number 36, hereafter referred to as the "40 City Study"). Although the study provided data from the largest available sample of nationally distributed treatment plants, it was not specifically designed to support the sewage sludge regulation. Thus, use of this study for sludge quality data is limited by such factors as the locations in the plant where sludge samples were taken, the analytical methods used for measuring the pollutant concentrations, the pollutants analyzed, and the use of the analytical results. The study also only provided data for POTWs.

The Agency used the data from the "40 City Study" to develop three profiles of sludge quality to represent sludge from all publicly owned wastewater treatment plants. In addition to the limitations of the data mentioned above, the sludge quality profiles are further

limited by the procedure used to assign the profiles to each of the POTWs. One of the three sludge quality profiles was assigned to each POTW, based on the percentage of industrial influent in the POTW's wastewater. This procedure assumes there is an association between high percentages of industrial influent and high concentrations of pollutants in the sludge. In fact, this intuitively logical relationship has not been convincingly verified by the Agency's analysis of the "40 City Study". We believe our assumption is valid, and that the failure of the "40 City Study" data to support this conclusion further demonstrates the limitations of the data.

The quality of sewage sludge is the basis for determining (1) the ability of POTWs to comply with the proposed regulation, (2) the subsequent impact of non-compliance, and (3) the risks associated with sludge use and disposal. The actual sludge quality at POTWs (i.e., the concentrations of pollutants in sludge) could be significantly different from the sludge quality data used in developing the RIA. Based on the limitations of the sludge quality data, it is possible that the quality of sewage sludge has been misinterpreted and the impact of the proposal over- or understated.

There are other limitations to the RIA that result from the scarcity of data. The RIA does not include any analysis for treatment works other than POTWs. In addition, the volume of sludge generated by POTWs using the various sludge disposal practices was estimated based on the volume of wastewater processed as reported in the "1986 Needs Survey". These estimates may not be accurate because they may not reflect up-to-date wastewater treatment process information. This information affects the estimates of volume of sludge generated.

Other limitations tied to the scarcity of facility-specific information include an inability to evaluate those parts of the proposed regulation that establish maximum pollutant limitations using site-specific parameters. When addressing site-specific criteria in the RIA, the Agency again relies on sludge quality profiles and model plants to represent actual facilities. The lack of facility-specific data also limits the Agency's ability to determine how POTWs will achieve compliance with the regulation. The decision to adopt an alternative disposal practice, to add pollution control equipment, or to require additional pretreatment from industrial dischargers will be made by individual POTWs based on a variety of site-specific conditions and considerations. In the absence of

facility-specific information, the Agency relied on a limited number of assumptions concerning the effect of local factors on compliance strategy. As an example, shifts to MSWLFs from other methods of use or disposal were considered to be unlikely for large volume POTWs located in areas where landfill capacity is constrained.

Another limitation of the RIA relates to the distribution of disposal methods among POTWs. The Agency estimated the distribution of disposal practices using original research and a limited amount of existing data (sources are identified in the RIA). For analytical purposes, each facility was assumed to employ only one use or disposal method. In reality, many POTWs use more than one method.

These limitations are important because they affect the compliance cost estimates—some of them to a significant degree. Some of the limitations tend to overstate compliance costs. For example, some POTWs that incinerate sludge are likely to be able to change operations (e.g., decrease feed rate) or depend on other site-specific characteristics (e.g., very high stack height) to avoid the expenditures that the RIA projects for out-of-compliance units to install additional pollution control technologies. In fact, EPA expects that POTWs producing sludge which fails to meet the numerical limits will try any and all low-cost solutions rather than use higher-cost alternatives such as changes in their basic use or disposal method.

Some of the other limitations used in the RIA may have the result of understating the impacts of the proposed regulations. For example, EPA has assumed that the smaller POTWs currently operating sludge monofills that are out of compliance will shift to MSWLFs. This assumption is based on the premise that these smaller POTWs are located in non-metropolitan or rural areas that have land available for new and existing landfill sites. We recognize, however, that the availability and cost of landfilling are becoming serious problems in virtually all areas of the country due to increased public resistance to siting new landfills or expanding current landfills.

Given the scarcity of data that might better indicate how affected POTWs will react to the sewage sludge use and disposal regulations, EPA is confident that the compliance costs provided in the RIA are reasonable estimates of such reactions and costs. Taken together, the Agency believes that the

RIA methodology neither understates nor overstates the regulations' costs.

In an effort designed, in part to eliminate many of the limitations of the analysis, the Agency has initiated an information collection effort designed, in part, to provide national estimates of sludge quality, sewage sludge use and disposal practices, and general characteristics of individual facilities (see discussion of the National Sewage Sludge Survey in Part III of this preamble). The Agency is also soliciting comments on several aspects of the procedures and assumptions in the RIA to improve the analysis and better assess the impact of the proposed regulations.

Description Of The Methodology

To evaluate the costs of compliance and benefits associated with the proposed regulations, the RIA first outlines the general characteristics of the wastewater treatment industry. This covers the types of treatment facilities, the number and size of facilities, the quantity of sewage sludge generated, the quality of sewage sludge, the amount of sludge used or disposed of by each method, and the costs of each use and disposal method. Estimates of the number, size, and types of treatment facilities are based on the "1986 Needs Survey". National estimates of the distribution of sewage sludge use and disposal methods among POTWs and the quantity of sludge disposed by each method were developed using original research and existing data (see the previous section of this part). For analytical purposes, each facility was assumed to use only one use or disposal method.

The Agency used data from the "40 City Study" for developing sludge contaminant levels. Three sludge profiles were developed to represent sludges from all publicly owned wastewater treatment facilities. The percent industrial influent of each POTW, as reported in the "Needs Survey", was used to assign one of the sludge quality profiles to each POTW. The three profiles represent three levels of pollutant contamination in sludges. First, a typical or expected level is set at the 50th percentile of the distribution of concentrations in the "40 City Study". Second, a more highly contaminated level is set at the 90th percentile. Third, a very highly contaminated level, representing a small number of facilities with very contaminated sludges, is set at the 98th percentile. Before finalizing the assignment of POTWs to a profile, adjustments were made to the percent industrial influent data to correct for

inconsistently reported values in the "Needs Survey." Once the adjustment was made, the typical sludge profile was assigned to those POTWs having an industrial contribution of 17 percent or less (90 percent of the POTWs). POTWs with higher industrial contributions—i.e., greater than 17 percent but less than 55 percent (accounting for approximately 8 percent of the POTWs)—were assigned to the 90th-

percentile category. Finally, those POTWs with an industrial contribution greater than 55 percent (2 percent of the POTWs) were assigned to the 98th-percentile category.

Baseline sewage sludge use and disposal costs were developed from several sources. The most extensive data base was developed by SCS Engineers and published in "Handbook for Estimating Sludge Disposal Costs at

Municipal Wastewater Treatment Facilities" (EPA 430/9-81-004). Table XI-2 presents sludge use and disposal costs for representative facility size categories. These costs include annualized capital and operation/maintenance costs for each method and transportation of sludge to the use or disposal site, if applicable.

TABLE XI-2.—BASELINE DISPOSAL COSTS BY DISPOSAL PRACTICE

(Annual Disposal Costs Per Dry Metric Ton of Sludge)

POTW size (MGD)	Annual sludge generation per POTW (tons/yr)	Incineration	Distribution and marketing	Monofill	Dedicated land application	Crop application	Reclamation	Surface disposal ¹
(\$/dry metric ton ²)								
0.1	22	³ na	813	301	279	238	636	238
0.5	111	2,422	458	183	196	179	356	179
2	445	772	326	245	205	176	312	176
14	3,116	283	163	83	57	46	173	46
128	28,478	153	147	55	42	42	161	42

¹ Costs assumed to be similar to crop application.² 1987 dollars.³ There are no POTWs using incineration in this size class.

The sludge quality profiles were used to determine compliance with the proposed regulations for each use and disposal method. Once a compliance strategy is assumed, the associated compliance costs are estimated. Estimated costs of compliance are compared to the baseline costs to determine the incremental cost of complying with the criteria. The sum of the incremental costs and the costs associated with management practices and sludge testing are the total costs for each use and disposal method.

Regulatory Impacts for Land Application

Land application is defined in Subpart B of the proposed regulations as the application of liquid, dewatered, dried, or composted sludge to either agricultural or non-agricultural land. A more detailed discussion of land application and the various end uses is presented in Part IX of this preamble and in the RIA.

The regulatory requirements pertaining to land application include pollutant-specific numerical criteria and management practices. These criteria and management practices differ for agricultural and non-agricultural applications. The criteria for agricultural land limit both the application rate (the maximum amount of sludge that can be applied at one time to a unit area of land) and the pollutant loading rate (the maximum amount of a pollutant that can be applied to a unit area of land either

during a calendar year or cumulatively). For non-agricultural land, the regulation defines maximum sewage sludge pollutant concentrations. Management practices include various restrictions on access to and use of land. These restrictions vary depending on the level of pathogen reduction attained.

Compliance with the regulation was estimated by comparing the numerical criteria for both agricultural and non-agricultural land applications to the three sludge quality profiles. Non-agricultural land applicators that could not meet the maximum pollutant concentrations, as well as agricultural land applicators that could not meet either annual or cumulative application rates, were assumed to shift to another disposal method.

The results of the analysis for typical sludge quality indicate compliance with all of the criteria for agricultural land application. For the 90th- and 98th-percentile sludges to meet the criteria, sludge applications rates are considered too low to be practically feasible. Therefore, the POTWs that have been assigned to the 90th- and 98th-percentile sludge qualities are projected to be out of compliance with the agricultural land application criteria. The results of the analysis for non-agricultural criteria indicate that the maximum allowable concentrations can be met for the typical and 90th-percentile sludge quality. Only the 98th-percentile sludge

fails to meet the non-agricultural land application criteria.

The 266 POTWs that cannot meet the agricultural land application criteria are assumed to shift to either non-agricultural land application (dedicated sites), MSWLFs, or composting in combination with non-agricultural land application. The 12 POTWs that fail to meet the maximum concentration limits for non-agricultural land are assumed to shift to MSWLFs or to add composting processes prior to dedicated land application. The total incremental cost associated with shifting agricultural (\$7.0 million) and non-agricultural (\$1.0 million) land applications to alternative practices is \$8.0 million annually.

Pathogen and vector attraction reduction and access and use restrictions are not expected to result in any incremental costs for POTWs in this category. These management practices are thought to be currently required by existing State and Federal regulations. There is an estimated total annual cost of \$500,000 associated with pathogen testing for all POTWs applying sludge to land. Because many POTWs perform vector attraction tests, the cost of such testing is assumed to be negligible. Sludge testing and record keeping and monitoring are required for all POTWs applying sludge to both agricultural and non-agricultural land. Those 25 POTWs shifting to co-disposal landfill would not incur costs of sludge testing and record keeping and monitoring. The total

annual cost of sludge testing is approximately \$4.4 million. Record keeping and monitoring are estimated to cost \$2.2 million annually. Thus, the total estimated compliance costs associated with land application are \$15.2 million annually.

The baseline risks associated with land application (i.e., the risks associated with current practice) are estimated to be 0.18 cancer cases and 42 cases of other health effects. The benefits of complying with the proposed regulation are expressed as reductions in the risk—the number of baseline cases that are avoided. For land application, the benefits are estimated to be 0.06 cancer cases avoided and 21 cases of other adverse health effects avoided.

Regulatory Impacts for Distribution and Marketing

The proposed regulation defines distribution and marketing as the use of sewage sludge or a product derived from sewage sludge (e.g., composted sewage sludge) primarily as a soil amendment or fertilizer. The sludge or product may be sold or given to users or distributed in containers, such as bags, or in bulk form. The end user and, therefore, the ultimate end use of the sewage sludge is usually not controlled (either directly or indirectly through a contract or similar mechanism) by the POTW. For purposes of the RIA, distribution and marketing has been distinguished from land application on the basis of whether or not the sludge has been composted. POTWs known to compost sewage sludge and the quantities of sewage sludge known to be composted were used to approximate the number of POTWs and volumes of sludge involved in distribution and marketing.

A total of 106 POTWs currently practice distribution and marketing. These POTWs generate an estimated 705,500 metric tons of sewage sludge per year, roughly nine percent of the total sewage sludge generated in the United States annually.

The proposed regulation defines maximum pollutant concentrations in the distributed and marketed product as a function of application rates. The pollutant concentrations of the 106 POTWs, as represented by sludge quality profiles, were compared to the regulatory limitations to determine maximum rates of application. Since composted sludge is mixed with bulking agents before being distributed, the final concentration of pollution in composted sludge was calculated using a dilution factor. The application rate analysis indicates that a typical quality sludge, when applied at 10 dry metric tons per

hectare, complies with the maximum allowable concentrations. For higher pollutant concentrations, the application rates would be too limiting. Thus, the 35 POTWs associated with the 90th- and 98th-percentile sludge are assumed to shift to alternative disposal methods.

An estimated 70 percent of these 35 POTWs (25 POTWs) are expected to shift to non-agricultural land application. These POTWs currently dispose of their sludge by using non-agricultural end uses, they either have some level of control or are expected to gain contractual control of the end use of their sludge. The remaining 30 percent of the 35 POTWs are assumed to shift to incineration. The total incremental cost for these 10 POTWs to shift their current method to incineration is \$7.1 million. This includes \$180,000 for continuous monitoring and recording and a one-time cost of \$130,000 for performance testing and air dispersion modeling.

Management practices required by the proposed regulation include preparing labels and information sheets for the distributed sludge, testing sludge, and reducing pathogens. The level of pathogen reduction required by the regulation is assumed to be achieved when sewage sludge is properly composted. Thus, no incremental costs are expected for pathogen reduction in this case. The 71 POTWs that will continue distribution and marketing incur a total cost of about \$23,000 for labels or sheets. All 106 POTWs in this distribution and marketing category will test their sewage sludge at a cost of \$500,000 annually and will incur annual costs of \$140,000 for record keeping and reporting annually. In sum, the total estimated compliance costs for distribution and marketing are \$7.8 million for the first year and \$7.7 million annually for subsequent years.

The baseline risks associated with distribution and marketing (i.e., the risks associated with current practice) are estimated to be 0.02 cancer cases and 95 cases of other health effects. The benefits of complying with the proposed regulation are expressed as reductions in the risk—the number of baseline cases that are avoided. For distribution and marketing, the benefits are estimated to be 0.02 cancer cases avoided and 56 cases of other adverse health effects avoided.

Regulatory Impacts For Monofills

As discussed in Part IX of the preamble, Subpart D of the proposed regulations apply to landfills that are used only for the disposal of municipal wastewater sludge (monofills). The methods of landfilling sewage sludge and the basis for regulatory

requirements are discussed more fully in the RIA and in Part IX of this preamble. The following is a summary of the methodology used in the RIA to assess the impact of the regulation on facilities disposing of sewage sludge in monofills.

The Agency has identified 49 POTWs that use or maintain monofills. These POTWs account for approximately 100,000 metric tons of sewage sludge per year (about one percent of the total sewage sludge generated in the United States).

To determine the number of POTWs in compliance with the proposed criteria for monofills, each of the POTWs using monofills was assigned to one of the three sludge profiles based on the percent industrial contribution to each plant. The three sludge profiles were then compared to the maximum allowable sludge concentration specified in the proposed regulation for monofills overlying Class II ground waters. Although the proposed regulation specifies separate criteria for Class I, and Class II and Class III ground waters, the criteria for Class II were used for this analysis based on studies indicating a high probability that existing monofills overlie Class II ground waters. This comparison resulted in none of the 49 POTWs passing all of the pollutant limits for any sludge profile.

A POTW that does not meet the numerical criteria for one or more pollutants can request that EPA run a computer model to generate criteria based on the POTW's site characteristics. In the absence of the individual facility data required to demonstrate compliance by running a site-specific model, all plants failing to meet a regulation's numerical criteria were assumed to switch to a different method of sewage sludge disposal. The smallest facilities (0.1 to 0.5 million gallons per day (mgd) model facilities) are assumed to shift to MSWLFs. The larger facilities, because of their potentially significant impact on municipal landfill capacity problems, are assumed to shift to incineration.

The estimated total incremental cost for the 19 smaller-size facilities to shift from monofills to MSWLFs is approximately \$170,000 annually. For the 30 POTWs currently monofilling that are in the larger size classes, the incremental cost to shift to onsite incineration is estimated to be \$24.3 million annually.

Those POTWs shifting to MSWLFs will not be required to test their sludge quality continually. But, the 30 facilities shifting to incineration will be required to test for the pollutants specified in the

proposed regulation as it pertains to incineration. The total cost associated with sludge testing for these facilities is approximately \$22,000 per year. In addition, the POTWs shifting to incineration will have to perform continuous monitoring, record keeping, and reporting tasks at a cost of \$600,000 annually. POTWs shifting to incineration will also incur a one-time cost of approximately \$400,000 for performance testing and air dispersion modeling.

The total incremental compliance costs associated with sewage sludge monofills for the first year are \$25.5 million annually. The annualized cost in subsequent years are estimated to be \$25.1 million.

The baseline risks associated with monofills (i.e., the risks associated with current practice) are estimated to be 0.02 cancer cases and 26 cases of other health effects. The benefits of complying with the proposed regulation are expressed as reductions in the risk—the number of baseline cases that are avoided. For the monofill disposal practice, benefits are estimated to be 0.02 cancer cases avoided and 26 cases of other health effects avoided.

Regulatory Impacts for Surface Disposal Sites

A surface disposal site is defined in the proposed regulation as an area of land on which only sewage sludge is placed without vegetative or other cover and on which sewage sludge remains for a period of one year or longer. The Agency has identified 2,395 POTWs that use sewage sludge surface disposal sites for managing the disposal of their sludge. Most of these POTWs are in the smallest size categories (0.1 and 0.5 mgd) and generate approximately 197,000 metric tons of sewage sludge per year, less than three percent of the total generated in the United States.

The proposed regulation defines maximum allowable pollutant concentrations for surface disposal sites. To determine the number of POTWs in compliance with the proposed criteria, the three sludge quality profiles were compared to the pollutant concentration limits defined in the regulation. Based on this comparison, 25 POTWs with 98th-percentile sludge quality failed to meet the numerical limits for one or more pollutants. The 20 smallest facilities that cannot meet the criteria are assumed to shift to MSWLFs. The five largest facilities that do not meet the criteria are assumed to compost their sludge and land apply it to dedicated sites.

The total incremental cost for the smaller facilities to shift from sewage

sludge surface disposal to MSWLFs is approximately \$150,000 annually. The total incremental cost for the larger facilities to apply composted sludge to dedicated land is \$1.2 million annually. Management practices required by the proposed regulations for surface disposal include sludge testing, record keeping and reporting, and pathogen and vector attraction reduction. Sludge testing required for all of the POTWs using surface disposal sites is estimated to cost \$2.3 million annually. The annual cost of record keeping and reporting is estimated to be \$1.7 million. These POTWs will also incur an annual cost of \$0.2 million to meet the pathogen and vector attraction reduction requirements. Other management practice requirements include use and access restrictions, runoff controls, and limits for methane gas generated. The costs for complying with these requirements are expected to vary by site; some POTWs may already be subject to similar requirements imposed by local or State authorities. The Agency does not have sufficient information to estimate the costs for methane control and for runoff requirements and solicits comment on the compliance costs associated with all surface disposal site management practice requirements. For purposes of the proposed rulemaking, the Agency estimates the total incremental cost of compliance for surface disposal to be \$5.5 million, annually. The Agency has not yet estimated human health benefits for this method of disposal.

Regulatory Impacts for Incineration

A detailed discussion of sewage sludge incineration and the regulatory requirements pertaining to incineration can be found in Part IX of this preamble. The following is a brief discussion of the methodology used in the RIA for developing the compliance costs and risk estimates for incineration.

The proposed regulation requires sewage sludge that is incinerated to meet pollutant limits for seven metals and for total hydrocarbons (THC). Compliance with the proposed criteria is demonstrated in the RIA using a two-step process. First, maximum concentration limits for the metals and for THC are calculated using the equations specified in the regulation. The maximum concentration limits for the metals are based on the sludge feed rate and incinerator control efficiencies. For THC, the limits are based on the gas flow rate and a dispersion factor. All of the equation parameters used to establish limitations, except for the sludge feed rates and the gas flow rates, are given in the regulation. If any of the

pollutant concentrations in the sludge of a POTW are above the calculated maximum concentration values, the incinerator at that POTW is not in compliance. Compliance must be demonstrated through incinerator emissions testing and air dispersion modeling.

Parameters provided by incinerator performance tests and computerized air-dispersion modeling are used to calculate maximum allowable concentrations for metals. For THC, the air dispersion model is used to calculate the dispersion factor, which is used to re-calculate the equation given in the regulation. If compliance is not achieved through these two steps, POTWs are assumed to upgrade the incinerator's pollution control equipment. For purposes of the RIA, the pass/fail analysis uses the 10th-percentile metal control efficiency values specified in the regulation to determine how many facilities would have to test their facilities and conduct air dispersion modeling. Then, typical values were used as a proxy to determine the number of facilities that would be out of compliance with the numerical limit after performance testing and modeling.

EPA identified 169 POTWs that use 282 sewage sludge incinerators as a method of disposal. These POTWs generate slightly more than 20 percent (1.7 million dry metric tons per year) of the total municipal sewage sludge produced in the United States. For purposes of this analysis, 10 actual incineration facilities were selected as models to represent the variety of geographic, meteorological, and operating conditions relevant to all incineration facilities. Each of the 169 facilities is represented by the one facility in the group of ten it most closely resembles in terms of location, stack parameters, and capacity.

The Ocean Dumping Ban Act of 1988 prohibits the dumping of sewage sludge into ocean waters after December 1991. To account for the 400,000 dry metric tons of sewage sludge currently disposed of in ocean water, the 25 POTWs that currently use this method have been included in the incineration category. The volume of sludge generated by these POTWs will eventually be covered by today's proposed regulation. At present, incineration is the most likely disposal method. The 25 POTWs were assigned to one of the 10 models as were the other 169 POTWs currently incinerating their sewage sludge. It is assumed that 34 additional incinerator units will be required. Therefore, for the purposes of the RIA, the Agency assumes 194

POTWs generating 2.1 million metric dry metric tons of sewage sludge per year, using 316 sewage sludge incinerators.

Compliance costs were estimated using a two-stage process. First, an analysis was performed to determine the number of facilities currently in compliance with the proposed regulatory criteria. The three sludge quality profiles (previously discussed in the methodology section) formed the basis for comparison to the criteria. Second, compliance costs were aggregated for monitoring, record keeping, other management practice modifications, performance tests, and pollution control systems.

When the sludge feed rates from the 10 model facilities were used to calculate the maximum allowable pollutant concentration, all three of the sludge quality profiles exceeded the limits for several pollutants. All of the incinerator facilities are then assumed to incur the costs of emission testing and air dispersion modeling to demonstrate compliance. When maximum allowable concentrations are calculated using typical, rather than worst-case 10th-percentile, removal efficiencies and dispersion factors (to provide a better representation of site-specific conditions at the model plants), 122 POTWs (with 219 incinerators) are projected to fail to meet the numerical limits for metals. Of these, 28 POTWs (with 61 incinerators) are also projected to fail to meet hydrocarbon emissions requirements.

The cost of complying with the proposed regulation includes the costs of management practices required of all sewage sludge incinerator facilities, the costs of performance testing, and the costs of retrofit technologies if facilities do not comply after performance tests and air dispersion modeling. Management practices include sludge testing for regulated pollutants and continuous monitoring of several incinerator parameters. Performance testing costs include emissions testing and air dispersion modeling.

The total annual cost of sludge testing for all POTWs with incinerators is approximately \$180,000. The total incremental costs of monitoring and recording (some facilities are believed to have monitoring devices in place to meet New Source Performance Standards requirements already) are estimated to be \$4.1 million annually. These costs reflect annualized capital costs plus annual operating and maintenance expenses. Record keeping and reporting is estimated to cost \$350,000 annually. Thus, the total annual costs for management practice requirements are \$4.6 million.

The total costs associated with performance testing for 169 POTWs are \$2.6 million. Theoretically, these costs are one-time expenditures by all POTWs that want to show compliance through performance tests and air dispersion modeling and avoid the cost of retrofit pollution control devices.

A total of 219 incinerator units are projected to incur the cost of upgrading their air pollution controls. Aggregate costs were estimated for the following three retrofit technology options to control metals emissions: (1) Wet electrostatic precipitators (ESPs); (2) fabric filters; and (3) dry scrubbers with fabric filters. Removal efficiency data for these technologies are very limited. The Agency has obtained and evaluated several studies of these technologies as applied to municipal solid waste combustors, but has no comparable studies of sewage sludge incinerators. Still, EPA believes that improved incinerator performance is achievable with the addition of these air pollution control devices. In the absence of better information, however, the Agency is unable to differentiate among the three retrofit technologies for purposes of assigning an improved removal efficiency. In order to estimate costs for this rulemaking, installation of wet ESPs was assumed to be appropriate for all incinerators that fail to meet the criteria for metals.

Total annual incremental costs for the retrofit technologies include annualized capital costs, installation and engineering expenses, and yearly operation and maintenance costs. The total costs assuming all POTWs choose the wet ESP option are \$24.0 million annually. The costs associated with the addition of fabric filters are \$21.5 million annually. The most expensive option is the dry scrubber/fabric filter option, which is estimated to cost \$186.2 million annually. The 28 POTWs (with 61 incinerators) that are also estimated to fail to meet hydrocarbon emission limits are assumed to require afterburners to effect removal of hydrocarbons. The total annual cost of after-burners with heat exchangers (energy recovery system) for these POTWs is estimated to be \$72.6 million.

The aggregate compliance costs associated with incineration for the first year, including management practice costs, performance testing costs, and costs of all of the wet ESP retrofit technology, are \$103.8 million. The performance testing is a one-time cost. The annualized costs in subsequent years are estimated at \$101.2 million.

The baseline risks associated with incineration (i.e., the risks associated

with current practice) are estimated to be 12.0 cancer cases and 5,976 cases of other health effects. The benefits of complying with the proposed regulation are expressed as reductions in the risk—the number of baseline cases that are avoided. For incineration, the benefits are estimated to be 9.4 cancer cases avoided and 5,163 cases of other adverse health effects avoided, for a total of 5,172.4 disease cases avoided.

Pretreatment

One section of the RIA is a separate analysis of the potential for application of industrial pretreatment as a compliance option for the proposed sewage sludge regulations. The assumption here is that stricter enforcement and requirements for pretreatment (beyond the categorical standards for indirect dischargers) would reduce the amount of pollutants entering the POTW and, consequently, would reduce the amount of pollutants in the sludge. In the RIA, the pretreatment case studies are used to determine whether compliance with the proposed regulation could be achieved through tighter pretreatment controls on categorical dischargers rather than shifts to alternative disposal methods.

To date, EPA has analyzed eight POTWs to determine the effect of stricter pretreatment measures on a POTW's ability to comply with the sludge disposal criteria. The eight POTWs were selected on the basis of data availability, while also trying to cover a variety of geographic regions, sludge disposal practices, and mix of contributing industries. Of the eight case studies, two POTWs use incineration, one uses a monofill, one uses a MSWLF, three use land application, and one uses ocean disposal for sludge disposal. The case study POTWs range in size from 2 to 300 mgd and the percent of industrial influent ranges from 4 to 52 percent. Fourteen industry segments and eight pollutants were included in each case study.

The case studies consider the effect of categorical pretreatment standards and, when applicable, more stringent technologies. At each POTW, the annual loading rates of several pollutants were estimated for each industrial contributor. Then, the reduction in pollutant loadings was estimated for the additional control provided by pretreatment. The major sources of information for pretreatment technologies and their pollutant reductions were the technical support documents for the effluent guidelines covering each industry. Pollutant reductions as a result of stricter

pretreatment will vary for each POTW depending on the types and sizes of the industrial contributors.

The results of the case studies show that only one of the eight facilities can achieve compliance for all pollutants if additional pretreatment by categorical industries is achieved. This POTW uses land application to dispose of its sewage sludge. For the POTWs that incinerate and monofill their sewage sludge, the criteria in the proposed regulations are stringent enough that even substantial reductions in certain pollutant levels were insufficient to attain compliance. The general conclusion of this analysis is that significant reductions in pollutants can be achieved by strict pretreatment, but that compliance with the sludge disposal criteria may not necessarily be attained through pretreatment actions alone.

The case study analysis and its conclusions are limited by the site-specific nature of the analysis, making it difficult to extrapolate results to all POTWs. The results are dependent on the type and size of the dischargers. The analysis is also limited in that the only improvements in sludge quality were among the categorical dischargers. Further, the pollutant removals were limited to those contaminants for which categorical pretreatment standards have been established.

This study of pretreatment also raises another question that may affect the Agency's policy on sewage sludge disposal. The issue is whether industrial pretreatment will merely shift pollutant problems from the sludge at the POTWs to the sludge at industrial facilities. The Agency plans to study this question before promulgating the final technical regulations and invites comment on the issue.

Reduction In Risk

In addition to the costs associated with the proposed regulations, the RIA also discusses the benefits that can be attributed to control of sewage use and disposal. The presentation in the RIA is limited to a summary description of the methodology used to calculate benefits and a summary of the results. A detailed description of the methodological approach and findings are presented in a companion document entitled "Aggregate Risk Assessment of Municipal Sewage Sludge".

The risk assessment used in the analysis follows the process outlined by the National Academy of Sciences. The assessment begins with a hazard identification and a source assessment and continues with fate and transport estimates, exposure assessments, pharmacokinetics analysis, and dose

response assessments. These components are used to develop the changes in health, measured as morbidity and mortality.

The first step in identifying the benefits from the proposed sewage sludge regulation involves estimating the baseline human health risks of sludge use or disposal. These health risks are presented as cases of cancer and other health effects, such as lead-related diseases. The key inputs for estimating baseline risks include source (POTW) information, sludge contaminants, and ultimate disposal site characteristics. Baseline risks from the sludge disposal practices are characterized based on the sludge quality profiles presented earlier, the quantity of sludge generated by each POTW, and the fate and transport of the pollutants subsequent to disposal, depending on a number of different environments that vary with each disposal practice.

On the basis of the above inputs, the analysis estimates the potential pathways of human exposure and models the fate and transport of the key sludge constituents for these primary pathways. The study then estimates the potential population exposed. This information, along with dose-response data for each of the sludge contaminants of concern, is used to characterize baseline human health risks.

Once baseline risks are derived, risk estimates are recalculated based on the level of control imposed by the proposed regulation. The regulatory compliance strategies for the health risk assessment parallel those used to estimate the compliance cost. The same risk assessment process is used to derive the change in the baseline risk as a result of each control option by use or disposal method. This change in the baseline is the measure of benefit. The estimates of the benefits are presented in the analysis for each use of disposal method and are expressed as the number of disease cases avoided. These disease cases include cancer cases avoided, but the results of the analysis also specify non-cancer human health effects that are avoided as a result of the proposed regulation.

Based on the analysis, the Agency estimates the benefits for this proposed rule to be a reduction of 9.5 cancer cases and 5,266 cases of other health effects. The quantitative benefits for each disposal practice are presented earlier in this part of the preamble and in Table XI-1.

There are a number of limitations that affect the estimates of risk reduction, including the exclusion of certain exposure pathways, contaminants, and

health effects. The analysis is also limited by the reliability of sludge quality data, the uncertainty of the distribution of disposal practices by POTWs, and the lack of ability to account for population growth and mobility.

Environmental Effects

The proposed regulation is expected to result in certain environmental benefits, in addition to the benefits associated with reducing the incidence of adverse human health effects. These environmental benefits are an outgrowth of the general reduction in the amount and toxicity of sludge that is used or disposed of by ways damaging to the environment, particularly that which is placed in environmentally sensitive areas. These environmental benefits consist mainly of improved habitats for wildlife and other species in the areas where methods of disposal and use practices occur.

For example, the regulations affecting land application of sewage sludge are likely to result in some level of improvement in the quality of water bodies in the watershed for these areas. The management practices specified in the regulation provide for set-backs from water bodies. This will tend to decrease runoff of pollutants, thereby improving water quality in the area's streams, rivers, or lakes. Similarly, monofills and surface disposal sites are prohibited from wetland areas. Together, these improvements, while they may be small, will nevertheless benefit the aquatic species present and other species in the food-chain that are dependent on the water bodies and wetlands for food (e.g., waterfowl). To some extent, sport fishermen and hunters are likely to gain some benefit due to the improved habitats for fish and wildlife.

Changes in incineration practices are also likely to provide some marginal environmental gain for wildlife. In addition, emissions reductions in the vicinities of the incinerators may reduce particulate and other chemical deposition on buildings, automobiles, and structures, providing for a reduction in the extent to which these items are damaged by air pollution. Commercial farms and home gardens located in areas affected by deposition from sludge incinerators may experience some increase in crop vitality due to lower levels of pollutants that are discharged.

Small Entity Analysis

In addition to the analytical requirements imposed by the statute and by Executive Order 12291, the Regulatory Flexibility Act requires all

Federal agencies to analyze the impact of a proposed regulation on small businesses, small governmental jurisdictions, and small organizations. The purpose of this analysis is to determine whether the proposed regulation will have a significant impact on a substantial number of small entities. For purposes of the proposed sludge regulation, the Agency defines small entity as a small POTW. The size distinction is based on daily influent flow, which is a frequently used parameter for describing the size of a POTW. There is also a direct relationship between the amount of flow and the quantity of sludge generated.

Throughout the RIA, costs have been estimated for five size classes of POTWs represented by 0.1 mgd, 0.5 mgd, 2 mgd, 14 mgd, and 128 mgd. For the purpose of evaluating the impact of the sludge regulation on small entities, a POTW in the 0.1- or 0.5-mgd size class is defined as a small entity. The Agency solicits comment on this definition. Eighty-one percent (4,337 POTWs) of the POTWs covered by the proposed regulations are in these two size classes. The majority (98 percent) of these small entities practice land application or use surface disposal sites.

The small POTWs will not incur significant costs if their sludge is considered to be of typical quality, which is the Agency's projection for approximately 90 percent of all POTWs. In addition, the Agency has limited the compliance burden for small entities in the area of sludge testing. The proposed regulations are tiered such that smaller POTWs are subject to less frequent monitoring and reporting requirements. Small entities make up 81 percent of all POTWs subject to the regulation, but only incur six percent of the total compliance costs for the proposed regulations. The total annual compliance costs per POTW averaged over all disposal practices are about \$1,600 per year for POTWs in the 0.1-mgd size class and about \$3,000 per year for those in the 0.5-mgd size class.

Request for Comments

The Agency has initiated an information collection effort through the National Sewage Sludge Survey. The survey collects data that will be used to develop the final numerical limits by testing the assumptions on which those limits are based and to better estimate the effects of this regulation on the methods of sewage sludge use and disposal. Approximately 470 POTWs are expected to participate by completing a questionnaire. In addition, any other treatment works interested in answering the survey should call or write for a

copy of the questionnaire, as directed in the "For Further Information, Contact" section at the beginning of this preamble.

As discussed earlier, the RIA was limited by data constraints in several areas. Therefore, the cost and benefit results are partly based on a number of assumptions about sewage sludge use and disposal. In an effort to increase the accuracy of the Agency's projections and improve the analysis, EPA is soliciting comments on the following issues concerning the RIA. (These issues are described in detail in the appropriate segment of the RIA.)

Number of POTWs and Volumes of Sludge

As part of the National Sewage Sludge Survey, the Agency is collecting information on the number of POTWs, the volume of sludge currently generated, and the amount going to each method of use or disposal. As part of this request for comment, however, the Agency further solicits information on these estimates.

Multiple Practices

The RIA simplifies current estimates by assigning a single use or disposal method to each facility, although the Agency is aware that some POTWs use multiple methods of use or disposal. The Agency requests comment on the extent to which multiple methods are being used and the extent of error that might be associated with the RIA's simplification.

Small Entity Analysis

The RIA includes a small entity analysis. The Agency solicits comment on the definition of small entity, both in terms of using the flow size of a POTW as the means to define small and also on the levels selected to define small POTWs for regulatory purposes.

Baseline Costs

All of the compliance cost estimates are based on baseline costs for each of the methods of use or disposal. The major source of these baseline costs was an engineering study published by the Agency in 1981. The Agency solicits comment on the accuracy of these baseline costs and requests updates on any of the cost values that have changed.

Privately Owned Treatment Works

The RIA is limited to the impact that may be incurred by POTWs, but the regulation applies to all treatment works. The Agency requests comment on the number, location, size, and sludge

use or disposal methods at privately owned treatment works.

Pretreatment

The Agency believes that industrial pretreatment will be a means of compliance for many municipalities, but lacks sufficient information to make a quantitative assessment of the number of POTWs that will use local limits, either alone or with other compliance strategies, to comply with these regulations. Comment is requested on all aspects of industrial pretreatment as it pertains to compliance with sewage sludge use and disposal limitations (e.g., the extent of industrial pretreatment as a means of compliance). The Agency also solicits suggestions or additional data to evaluate pretreatment as a means of compliance.

Sludge Quality Data

One of the more serious data limitations associated with the RIA is a lack of sludge quality data. As described above, the assumptions concerning the concentrations of pollutants currently found in sewage sludge are critical to many phases of the RIA's conclusions. One objective of the National Sewage Sludge Survey, in its analytical sampling component, is to collect sludge quality information. Even in light of this planned data collection effort, the Agency requests comments on other sources of sludge quality data to use for comparative purposes and for verification. The Agency is also requesting comment on how the sludge profiles are used to represent sludge quality at individual treatment plants because, even when the sampling effort is completed, some assignment of sampling results to actual facilities may be required to conduct the Regulatory Impact Analysis.

Site-Specific Factors and Compliance

Another limitation of the RIA is an inability to assess compliance when site-specific factors will be used to establish the regulatory limitations. For example, the regulatory limitations for monofills may be adjusted on the bases of depth to ground water. The RIA does not account for such adjustments. Similarly, actual operating parameters at an incinerator may affect the allowable pollutant concentrations. The RIA accounts for conditions at ten model facilities, but not for distinctions at individual locations. The Agency requests comments on the extent to which site-specific factors will affect compliance.

Cost for Monofills To Change Practices

For monofills, the compliance cost estimates are based on the assumption that facilities unable to comply with the concentration limits will shift their disposal of sludge to a MSWLF or to incineration, depending on the size of the facility. The Agency solicits comments on the reasonableness of these presumed shifts in practice. Are suitable landfill sites available? What tipping fees would the POTW face to dispose of sewage sludge in a MSWLF? Would existing sewage sludge incinerators within reasonable distances accept sludge from this facility? Would sludge now disposed on monofills likely to go to practices other than municipal landfills or incinerators?

Distribution and Marketing Factors

For distribution and marketing, the RIA used a limited amount of information from POTWs to determine the final end use of the sewage sludge product (e.g., application to home gardens, parks, highway medians). While the National Sewage Sludge Survey is designed to increase the accuracy of this final end use information, the Agency is requesting comment on the distribution and marketing of sludge products among the end uses presented in the RIA.

Also for distribution and marketing, the Agency is soliciting comment on the shifts that are assumed for POTWs that would not comply with the sludge application rates and pollutant concentrations. The RIA assumes various shifts, depending on the size of the POTW, the quality of the sludge, and the final end use. Comments are requested on the land availability assumptions, opportunity to control the final end use, and reasonableness of shifts to alternatives.

Land Application Cumulative Loading Notes

The cumulative loading rates for land application were considered to be "passed" if one application (i.e., 1 year) was possible. However, in the results presented in the RIA, the lowest passing rate actually used was 10 years, which was based on the calculations specified in the regulation and on the sludge quality profiles used throughout the RIA. The Agency solicits comment on the reaction of POTWs to cumulative loading rate limitations. How many years of application reflect common land application practices? Will a cumulative loading rate be interpreted differently than an annual loading rate?

Incinerator Factors

For incineration, site-specific conditions could significantly affect the limitations for a particular facility (e.g., incinerator stack height and sludge feed rate). In the absence of more information, the RIA cannot project compliance for individual facilities. The Agency solicits comment on the various parameters that affect compliance (i.e., meeting more of the individual pollutant limitations, given the conditions at and around the facility).

The analysis of incineration relies on various air pollution control devices as the treatment technologies that facilities could use to comply with emissions limitations. Several retrofit technologies (e.g., wet ESPs, fabric filters) were used to estimate compliance costs (e.g., effectiveness of retrofit technologies in reducing the pollutant emissions). The Agency solicits removal efficiency data for the technologies used in the RIA and for other air pollution control devices. EPA also requests comments on the cost estimates used in the RIA for installing and operating these treatment systems.

Surface Disposal Site Management Practices

For surface disposal sites, the Agency solicits comment on management practices that facilities use to control access, prevent runoff, reduce pathogens, and control the generation of methane gas. EPA has found that the use of surface disposal sites is not well-documented. The Agency requests information on the number of facilities using surface disposal sites (as defined in this proposed rule), the volume of sludge disposed of, and expected compliance strategies if the pollutant concentration limits are not met.

Paperwork Reduction Act

The public reporting burden for the collection of information imposed by this proposal, averaged over a 3-year period, is estimated to be 336 hours for POTWs land-applying sewage sludge, 981 hours for POTWs distributing and marketing sewage sludge, 152 hours for POTWs disposing of sewage sludge on surface disposal sites, and 4,751 hours for POTWs incinerating sewage sludge. The average time per response per POTW is estimated to be 408.9 hours. The information collection requirements have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An Information Collection Request document has been prepared by EPA (ICR No. 1489) and a copy may be obtained from Eric Strassler, Information Policy Branch; EPA; 401 M

Street, SW. (PM-223); Washington, DC 20460 or by calling (202) 382-2709. Submit comments on these requirements to EPA and: Office of Information and Regulatory Affairs; OMB; 726 Jackson Place, NW; Washington, DC 20503 marked "Attention: Desk Office for EPA". The final rule will respond to any OMB or public comments on the information collection requirements.

PART XII: SUMMARY OF ISSUES AND DATA REQUESTED

In the foregoing preamble discussion, EPA solicited public comment on a broad range of issues and requested specific data and information. The Agency believes that it has provided sufficient information in the preamble and in technical support documents to support today's proposal. Public comments and data and information submitted to the Agency will be thoroughly evaluated to refine the proposal. In addition during the comment period, EPA will solicit the assistance of experts both inside and outside the Agency in the review of the scientific and technical bases of the rule. If new information alters the premises of today's proposal, the Agency will publish the new information along with a revised proposal in the *Federal Register*.

The broad issues, data and information discussed in the preamble are summarized below and are organized into the following categories: principles used in developing today's proposal, coverage of the rule, methodologies, level of protection, establishment of the standards, related requirements, and impacts.

Principles Used in Developing Today's Proposal

The fundamental principles underlying today's proposal follow.

Expand the Standards Later

While not delaying the proposal to wait for more current information, the Agency is conducting a National Sewage Sludge Survey, as well as gathering other data to assist in revising and expanding the scope of today's proposal.

Coordinate With Other Programs

Use the regulatory standards and tools developed for other Agency programs, where appropriate, in developing standards for a use or disposal method.

Control Sludge Quality

Set numerical limits on a pollutant-by-pollutant basis to prevent the contamination of sewage sludge before

it is used or disposed of and to create incentives for treatment works to generate clean sludge.

Emphasize Waste Reduction and the Beneficial Reuse of Sewage Sludge

By reducing the generation of sewage sludge (e.g., by home composting of food scraps rather than putting them down a garbage disposal) and by creating incentives for the generation of clean sludge, treatment works have more options to manage their sewage sludge beneficially.

Preserve a Local Community's Choice of a Use or Disposal Method

Although the Agency's preference is for local communities to reuse sludge for its nutrient and soil conditioning properties of sewage sludge, the Clean Water Act (CWA) reserves the choice of a use or disposal method to local communities. However, the protection of public health and the environment, where risks are significant, still dictates stringent pollutant limits. Therefore, some communities may not be able to continue with their current method of disposal, if, for example, a monofill is located over Class I ground water.

Base the Rule on Minimizing Risks to Individuals

In cases where exposure to pollutants is likely to be high or where there are significant scientific uncertainties, pollutant limits are derived using exposure assessment models designed to protect the most exposed individual, plant, or animal (MEI). If a use or disposal method poses insignificant risk of pollutant exposure to individuals through food, water, or air, base the numerical limits on "current sludge quality."

Propose Reasonable Standards

To protect human health and the environment from reasonably anticipated adverse effects of each pollutant, design an approach that accounts for data inadequacies, but does not necessarily protect against every conceivable combination of adverse case conditions.

Propose an Implementable Rule

Balance the flexibility associated with site-specific analyses against the simplicity of national pollutant limits.

Solicit Comment on a Wide Range of Issues

In addition to explaining the proposal, the preamble should discuss alternative approaches that have been used by other Agency programs regulating

pollutants in the various media and that were considered in developing the rule.

EPA is soliciting comment on these principles which it used in developing today's proposal.

Coverage of the Rule

The CWA recognizes that the development of standards for the use and disposal of sewage sludge is an iterative process. In section 405(d)(2)(C), the Administrator is directed to review the regulations from time-to-time, but no less frequently than every two years, to identify additional pollutants and to promulgate regulations for those pollutants. After evaluating a total of 50 pollutants, EPA is proposing specific numerical limits for 28 pollutants in one or more use or disposal methods. The National Sewage Sludge Survey will identify additional pollutants for the Agency to evaluate. However, are there pollutants that are not included in today's proposal which commenters believe should be evaluated immediately?

EPA did not evaluate the initial list of 50 pollutants for each use or disposal method because the Agency's expert advisory group did not believe that certain pollutants would interfere with a particular method of use or disposal. However, without evaluating whether or not a pollutant interferes with a particular disposal method, EPA could not authorize a removal credit when sewage sludge is disposed of by that method. In future rulemakings, the Agency plans to evaluate the interference of a pollutant with each method of use or disposal. The Agency is soliciting comment on the need to re-run its models for all the pollutants in every use or disposal method if a human health criterion exists.

The proposal does not set standards for sewage sludge that is generated or treated by privately owned treatment facilities that treat domestic sewage along with the facilities' industrial wastewater. At this time, the Agency does not believe that it has sufficient information on the characteristics of industrial sludge to use the models that were developed for municipal sewage sludge. However, are there types of industrial sludge, such as food processing wastes with a high organic content, that are sufficiently similar to municipal sewage sludge for the Agency to establish standards with the models developed for municipal sewage sludge? The data needed to determine the appropriateness of the exposure assessment models for industrial sludge include the viscosity, density, moisture content, and organic carbon content of the sludge.

Generally, when sewage sludge is incinerated, the sewage sludge is fired in sewage sludge-only facilities. The Agency is examining the co-firing of sewage sludge with solid waste in connection with the development of new source performance standards for municipal waste combustors. Under section 405(d) of the CWA, should the Agency set separate standards for sewage sludge fired with solid waste, even though sewage sludge is unlikely to be a significant portion of the waste fed into a municipal waste combustor? On the other hand, should the Agency develop standards under both section 111 of the CAA and section 405(d) of the CWA? Standards were proposed under the joint authority of sections 4004 and 4010 of RCRA and section 405(d) of the CWA in the case of the disposal of sewage sludge in municipal solid waste landfills (MSWLFs).

The Agency is proposing standards for five disposal practices. Are there other methods of using or disposing of sewage sludge that the rule does not, but should cover?

Methodologies

Exposure Assessment Models

The Agency developed a series of mathematical expressions or algorithms to simulate the movement of a pollutant into and through the environment to an MEI. These models were designed to calculate the long-term exposure to an individual, plant, or animal. Were the most appropriate models used or are there other more appropriate models that the Agency should consider prior to promulgating pollutant limits? How should the models EPA used be revised? In a rule such as this, is it appropriate to evaluate only the long-term effects or should the models be modified to also consider short-term fluctuations in exposure?

The technical support documents for land application, landfilling, and incineration list the values used in the models. Do these values support a rule that is "adequate to protect public health and the environment from any reasonably anticipated adverse effect of each pollutant"? The Agency is soliciting additional data in refining today's proposal.

The Agency used the accepted approach of evaluating the effect of 70 years of continuous exposure to an individual who receives the maximum exposure except for a child ingesting soil. For a child ingesting soil, the assumption is that the ingestion will occur over a 5-year period from the ages one through six. Are the scenarios for

the MEI reasonable? Do they reflect scenarios which could occur? For example, is it reasonable to assume that for the application of sewage sludge to agricultural land that the MEI resides on the land where the sewage sludge is applied? For distribution and marketing, the MEI scenario is a rural non-farm family growing 60 percent of their fruits and vegetables in a sludge-amended home garden. For monofills, the assumption is that the MEI drinks 2 liters of water from a well located at the property boundary of the monofill and inhales 20 cubic meters of air a day while standing in the center of the plume at the property boundary of the monofill. For the incineration scenario, the MEI is located in the peak concentration of the plume, inhaling 20 cubic meters of air a day.

In addition to the MEI, each of the exposure assessment models has key parameters that affect the limit that is calculated. EPA is interested in comments on key parameters which may not have, but should have been considered. The key parameters on which the Agency is particularly interested in receiving public comment follow.

Land Application for Agricultural Lands

The key parameters for the land application of sewage sludge on agricultural lands include the following:

- The land receiving the sewage sludge will be converted to residential home gardens within 5 years;
- The sludge is mixed with soil to a depth of 15 centimeters (6 inches);
- The background concentration of metals in the soil corresponds to the average soil concentration of rural agricultural land;
- Over time, metals are absorbed by plants at the same rate as they were when first applied to the soil;
- Eight percent of the food intake of a grazing animal consists of a sludge-soil mixture;
- The most highly sensitive plants and animals were used in the analysis; and
- The ingestion rate of 0.1 grams per day for 5 years was used in analyzing the effect of children eating soils (as compared to 0.5–5.0 grams for a child exhibiting PICA behavior).

Distribution and Marketing

The key parameters for the distribution and marketing of sewage sludge include the following:

- Neither the raising of animals for human consumption nor the growing of feed crops for animals raised for human consumption were considered for this home garden scenario;

- The background concentration of metals in the soil corresponds to the average soil concentration of rural agricultural land; and
- The sludge is mixed with soil to a depth of 15 centimeters (6 inches).

Monofills

The key parameters for the disposal of sewage sludge in monofills include the following:

- All metals go into solution and leach to the ground water;
- For Class I ground water, the point of compliance is the point at which the leachate reaches the ground water—the depth to ground water is assumed to be zero;
- For Class II and Class III ground water, the point of compliance is 150 meters (450 feet) from the point of entry—the depth to ground water is assumed to be one meter;
- The effect of synthetic liners was not considered in the analysis; and
- The rate at which pollutants volatilize into the atmosphere is not attenuated by the adsorption or degradation of pollutants.

Incineration

The key parameters of the incineration of sewage sludge include the following:

- The metal control efficiencies of incinerators were assumed to correspond to the 10 percent worst-control efficiencies of the sewage sludge incinerators in EPA's data base;
- All incinerator emissions include the same constituents; and
- Short-term fluctuations of operations were not examined.

Other Exposure Assessment Models

The Agency is developing exposure assessment models for sewage sludge placed on surface disposal sites and for the development of health-based pathogen and vector attraction reduction requirements.

In developing the model for surface disposal sites, the Agency is soliciting additional data on the location and size of surface disposal sites. The Agency is also soliciting data on the key differences in the sewage sludge disposed of in monofills, on dedicated non-agricultural land, and on surface disposal sites (e.g., the viscosity, density, solids content, and pollutant concentrations). In addition, the Agency is soliciting information on the management practices, if any, generally associated with surface disposal sites. Comments are requested on the proposed definition of "surface disposal sites." Does it make sense to differentiate surface disposal sites from

dedicated land application and from monofills?

For pathogens, the Agency is soliciting data on the movement of pathogenic organisms from a sewage sludge matrix and the attenuation of the organisms by dilution, temperature, moisture, sunlight, pH, presence of antagonistic organisms, and soil structure. In addition, the Agency is requesting information on reliable measurement techniques for pathogenic organisms. Also, data are requested on the relationship between infectious dose and disease.

Methodology for Evaluating the Aggregate Effects of Current Use and Disposal Practices

EPA did not look at the effects of concurrent exposure to more than one source of sewage sludge-borne pollutants. The Agency is interested in evaluating models that would take into account multiple routes of exposure and is requesting that information on such models be submitted to EPA as part of the comments on today's proposal.

The Agency relied on data from "Fate of Priority Pollutants in Publicly Owned Treatment Works" (the "40 City Study", Reference number 36) as the primary source of information on the pollutant concentrations in municipal sewage sludge. Recognizing the deficiencies in the data base, the Agency has initiated a National Sewage Sludge Survey to provide current and reliable data that will improve our analyses of risks of using and disposing of sewage sludge and, consequently, of appropriate pollutant limits. Given the lack of data on the quality of sewage sludge that is used or disposed of by a particular method, was it reasonable for the Agency to assume that a facility's sewage sludge corresponded to the 50th-, 90th-, or 98th-percentile concentrations in the "40 City Study"? Was it reasonable to assign the 50th-, 90th-, and 98th-percentile sludges to facilities based on the industrial component of wastewater flow?

Until the Agency develops exposure assessment models for pathogens and for sewage sludge disposal on surface disposal sites, quantitative assessments of the effects of sewage sludge use and disposal will be incomplete. However, the Agency does not believe that surface disposal sites measurably increase the incidence of adverse human health or environmental effects. The Agency is interested in evaluating any documented evidence that pathogenic diseases have been transmitted through the application of sewage sludge to the land or through the disposal of sewage sludge in monofills or on surface disposal sites.

The Agency is interested in approaches others may have used in evaluating human health and environmental effects of disposing of sewage sludge on surface disposal sites.

In evaluating the effects of current methods of sewage sludge use and disposal, the Agency used average or typical conditions. Was this an appropriate approach or should the Agency consider other approaches in determining the effects of sewage sludge-borne pollutants? Are the assumptions that the Agency made in identifying typical conditions reasonable? Was it reasonable to assume complete mixing of food crops in the national market place and that sewage sludge would be applied only once to farm land? Are the percentages of food consumed from home gardens reasonable? Is it reasonable to use the rate normal children ingest dirt rather than the rate associated with a PICA child? Did the Agency select the appropriate-sized POTWs and the appropriated hydrogeologic characteristics in modeling the 49 monofills? Was it appropriate for the Agency to allocate all 194 sewage sludge incinerator facilities to one of 10 modeled facilities? Is the 25th-percentile metal control efficiency reasonable to use in evaluating the effects of metal emissions from incinerators? Given the lack of data on total hydrocarbon emissions, did the Agency use an appropriate approach in allocating the results from four tests to the 194 sewage sludge incinerator facilities?

The Agency is interested in alternative approaches that it should consider in estimating the number of cancer cases, in estimating the number of individuals exposed to concentrations above a reference dose (RfD), and in estimating the effects from exposure to lead. In addition, the Agency is interested in approaches that may have been developed to evaluate ecological effects, including farm economic losses caused by plant or animal toxicity.

Level of Human Health and Environmental Protection

In setting numerical limits with the exposure assessment models, EPA generally is using existing Agency criteria, where they exist, to ascertain that the numerical limits do not exceed human health criteria. Where the Agency has not published human health criteria, the approach used in this proposal was to select the values in the Agency's computerized Integrated Risk Information System (IRIS). Are there more appropriate human health criteria that the Agency should have evaluated? Was it appropriate for the Agency to assume that, if a value was not listed in IRIS, there was no human health criterion for a pollutant and to defer

consideration of the pollutant until IRIS listed a human health criterion? In developing a human health criterion for lead, when food grown on sludge-amended soils is ingested, did the Agency make the appropriate assumption on the allowable food intake? Do the assumptions the Agency used in developing an exposure scenario (e.g., MEI is an adult male, 2.5 percent of whose diet is from food grown on sludge-amended soils) provide an adequate margin of safety for any uncertainties in the data? Or are these assumptions so limiting that they preclude the beneficial reuse of sewage sludge and force sewage sludge to be incinerated?

The Agency selected risk specific doses corresponding to an incremental carcinogenic risk of 1×10^{-4} for the land application of sewage sludge to agricultural land, for the distribution and marketing of sewage sludge, and for the disposal of sewage sludge in monofills and a carcinogenic risk of 1×10^{-5} for the incineration of sewage sludge. The Agency selected a lower risk for the incineration of sewage sludge in order to compensate for postponing the examination of indirect pathways of exposure (i.e., deposition of emissions on plants and their subsequent ingestion), because of the number of people who may be exposed to high emission levels (51 million), and because of the high levels of maximum individual and aggregate risk posed by incineration. Do the projected benefits (i.e., increase in health cases avoided) merit a lower risk level? Given the assumptions used in establishing the doses, the assumptions used in the exposure assessment models, and the projected risks posed by each use and disposal method are the carcinogenic risk levels and the RfDs for non-carcinogenic pollutants adequate to protect public health "from any reasonable anticipated adverse effect from each pollutant." EPA, in particular, requests comments on its approach to establishing a cancer potency value for total hydrocarbons.

In selecting environmental criteria, the Agency used the most sensitive plant and animal toxicity values reported in the scientific literature. Are the plants and animals that the Agency used appropriate? By selecting the toxicity values for the most sensitive species, is the Agency setting more stringent pollutant limits than is necessary to adequately protect human health and the environment when sewage sludge is applied to agricultural lands? When field data were not available, was it appropriate for the Agency to base numerical limits on the phytotoxicity pathway using pot studies with sludge

spiked with metal salts? Are there data on wild plant and animal species that the Agency should evaluate?

Establishment of the Standards

EPA is proposing standards that include numerical pollutant limits, management practices, and other requirements that define the level of management control that treatment works, users and disposers must exercise over their sewage sludge to preclude adverse human health and environmental effects. The standards are established separately for each method of use or disposal.

In establishing the numerical limits, the Agency is proposing two approaches. The Agency is proposing to use the exposure assessment models to calculate pollutant limits when sewage sludge is applied to agricultural lands, distributed and marketed, disposed of in monofills, and incinerated because these practices are likely to result in high levels of pollutant exposure to an MEI or because there are significant scientific uncertainties about the effect of the disposal practice. The other approach is to use "current sludge quality" (i.e., the 98th-percentile pollutant concentrations shown in the "40 City Study") for the application of sewage sludge to non-agricultural lands and for disposing of sewage sludge on surface disposal sites. The Agency is using the "current sludge quality" approach for the later two practices because of its belief that human dietary exposure is unlikely to result from these practices.

Are these the appropriate premises for establishing the pollutant limits? Are there other premises that the Agency should consider? Is the Agency correct in assuming the implausibility of human dietary exposure, either through food or water, when sewage sludge is applied to non-agricultural lands or disposed of on surface disposal sites? Has the Agency over-estimated the amount of pollutant exposure likely to occur from the other practices warranting use of the 98th-percentile pollutant concentrations for other methods of use or disposal. Will the numerical limits or the definition of a use or disposal practice inhibit the beneficial reuse of sewage sludge (e.g., prohibiting the raising of crops for human consumption on non-agricultural lands)?

Will the 98th-percentile pollutant concentrations adequately protect the environment? The Agency's analysis shows that if 50 metric tons of sewage sludge were placed on a hectare of non-agricultural land, toxicity values for plants (lettuce) would be exceeded for copper and zinc at the 98th-percentile pollutant concentrations and toxicity values for predators (ducks) eating soil biota (earthworms) would be exceeded

for lead at the 98th-percentile pollutant concentration. Because these are the most sensitive species, is the Agency correct in assuming that any adverse environmental effect is unlikely to be significant?

In calculating the numerical limits with the exposure assessment models, the Agency is allowing the use of site-specific data to calculate case-by-case limits for sewage sludge that is disposed of in monofills and that is incinerated. These methods involve site-specific physical conditions that make a significant difference in the pollutant limits.

For land application, there are no physical parameters related to the site that make a significant difference in the pollutant limits. However, the models could be used to re-calculate numerical limits based on site-specific data. Should the Agency allow site-specific data to be used to calculate pollutant limits for factors other than those related to the physical characteristics of the site or when there is less than a significant difference in the resulting pollutant limit? Will national limits for sewage sludge applied to agricultural lands significantly inhibit the use of sewage sludge? Should the Agency consider the use of case-by-case limits for agricultural lands based on soil pH or type of crop grown and consider the testing of crops to ensure that crop residue levels will not exceed a limit that would cause the pollutant concentration to exceed the human health criterion?

The Agency believes that it would be impractical to establish case-by-case limits for sewage sludge distributed and marketed because of the infinite number of possible site-specific conditions. Is this a logical assumption?

The Agency is requiring the application of management practices for each disposal method to prevent gross abuse of the environment where it could not reasonably be anticipated that individuals would follow these management practices as part of the final use and disposal method. The Agency is also requiring controls to prevent the exposure of individuals and animals to pathogenic organisms when sewage sludge is applied to the land, distributed and marketed, and disposed of in monofills and on surface disposal sites. For the most part, the Agency has assumed that good practices will be carried out by the user and disposer. Should the Agency specify additional practices or allow States and localities to specify additional practices?

A summary of comments on issues, data, and information that the Agency is requesting related to the definition of

sewage sludge, to specific use or disposal methods, to the pathogen and vector attraction reduction requirements, and to the proposed pollutant limits follows.

Sewage Sludge

Septage and sewage sludge products are included in the definition of sewage sludge. By including septage in the definition of sewage sludge, the Agency does not wish to infer that it intends to regulate the location and operation of septic tanks. Therefore, septic tanks are specifically excluded from the definition of a treatment work. The Agency is regulating the use or disposal of the pumpings from septic tanks because of its concern with the levels of pathogenic organisms that may be in septage. However, are there other regulatory approaches that should be considered for septage that would tailor requirements to the Agency's specific concerns (e.g., pathogenic organisms) and would relieve sewage sludge haulers from monitoring for the 25 pollutants and calculating annual and cumulative pollutant loading rates? The Agency is uncertain about the extent and magnitude of any disruptions that today's approach may cause and is soliciting comment on the effect of defining septage as sewage sludge.

The Agency is also including sewage sludge products in the definition of sewage sludge. Sewage sludge products are mixtures of sewage sludge and other materials frequently added during composting. Today's proposal includes sewage sludge products within the definition of sewage sludge no matter how small the percentage of sewage sludge in the product. The Agency is soliciting comment on the possibility of sewage sludge products that contain so small a percentage of sewage sludge that they no longer have the characteristics of sewage sludge.

Land Application

EPA is proposing different approaches for calculating pollutant limits depending on the use of the land. If the land is used for agricultural commodities that are eventually consumed by humans, the Agency is proposing annual and cumulative pollutant loading rates calculated with the exposure assessment model. If the land is used for non-agricultural purposes, the "current sludge quality" (i.e., the 98th-percentile pollutant concentrations shown in the "40 City Study") is used as the basis of the pollutant limits unless the exposure assessment model calculated a higher pollutant limit. When the model calculated a higher pollutant limit, the

higher limit is used. The Agency is also proposing to prohibit growing or taking food for human consumption on land used for non-agricultural purposes during the application of sewage sludge and for a 5-year period after the final application of the sewage sludge.

Several issues arise on which the Agency is seeking public comment. Is it logical to assume that food is generally not grown on forest lands, lands being reclaimed, and lands dedicated to sludge disposal? Will the prohibition of taking food (e.g., hunting or berry picking) significantly affect uses of non-agricultural lands such as forests? Is 5 years a reasonable period of time to preclude growing food or feed crops or grazing animals on non-agricultural land that has been amended with sewage sludge? Will the Agency's proposal inhibit the beneficial reuse of sewage sludge? If so, why?

In deciding how to meet the pathogen reduction and vector attraction reduction requirements, treatment works have more flexibility if they choose to apply sewage sludge to land rather than to distribute and market it. With the increased flexibility, the Agency is requiring an agreement, contract, or other instrument with the applier or distributor to ensure that the applier is aware of the requirements (e.g., the time periods for public access and use restrictions) and complies with the requirements. Are the provisions in the agreement appropriate? Do treatment works believe that they will have difficulty in negotiating such agreements with those applying or distributing the sewage sludge? Are there provisions which the Agency should add to the agreements? How should the Agency deal with situations in which an applier of sewage sludge receives sewage sludge from more than one treatment work?

The land application model calculates pollutant limits for 14 pathways. The limit that EPA is proposing is derived from the pathway which results in the most stringent limit. The "Land Application Technical Support Document" includes a matrix showing the limits for each pollutant in each pathway. Are there circumstances under which the limiting pathway is inappropriate for sewage sludge applied to agricultural lands?

Key assumptions in the model affecting the numerical limits were identified in the discussion on the exposure assessment models. The Agency is particularly interested in the values used in the exposure assessment models and whether the combination of assumptions used in the models and the

requirements in today's proposal adequately protect human public health and the environment without over-regulating the beneficial use of sewage sludge.

The Agency proposed prohibiting the application of sewage sludge to frozen, snow-covered, or flooded land unless it is demonstrated that sewage sludge will not flow into nearby rivers, lakes, or streams. Are there circumstances when the application of sewage sludge to frozen, snow-covered, or flooded lands does not pose such a threat?

The models assume that certain practices such as incorporation into the soil to a depth of 15 centimeters or a soil pH of 6, are generally followed. Are these assumptions correct? While the Agency does not believe that it should mandate how landowners manage their land, are there other management practices directly tied to the protection of human health and the environment that the Agency has not specified, but should?

Do the pathogen reduction and vector attraction reduction requirements provide treatment works sufficient flexibility in meeting the goal of reducing the risk of transmitting pathogenic diseases from the use of sewage sludge? Are the time periods for restricting access to the land and grazing animals appropriate? Are the time periods for the growing and harvesting of crops sufficient to reduce the risk of transmitting pathogenic organisms into the food chain?

Distribution And Marketing

Is EPA's home garden scenario the appropriate assumption for the distribution and marketing of sewage sludge? The Agency is proposing that labels or information sheets accompany sewage sludge that is distributed and marketed. Is it also appropriate for the Agency to assume that use can be controlled with a product label? Are the provisions on the labels or sheets the appropriate provisions? Are there provisions that should be deleted? Are there provisions that should be added? Is it appropriate for the Agency to assume that users of the sewage sludge product will follow the type of label or sheet that the Agency is proposing?

Three key assumptions are used in calculating the pollutant limits. The first assumption is that sewage sludge is incorporated into the soil to a depth of 15 centimeters (6 inches). The Agency is uncertain that natural weathering processes will mix the sludge with the soil to that depth when the sewage sludge product is applied to a lawn. Are there studies on the depth to which natural processes mix sewage sludge

into the soil profile? Should the Agency have the labels or sheets require users to incorporate the sewage sludge into the soil to a depth of 6 to 8 inches?

The second key assumption in the home garden scenario is that animals raised for human consumption, as well as the food and feed crops for such animals, are not exposed to sewage sludge. As a consequence of this assumption and the prohibition on the labels, the Agency eliminated pathways of exposure relating to animals raised for human consumption. Elimination of these animal pathways results in less stringent numerical limits for organic pollutants than those for agricultural lands. Was it logical for the Agency to assume that animals raised for human consumption were not a part of the home garden scenario?

Finally, the Agency assumed that 20 applications of sewage sludge would be applied to the land in calculating the pollutant limits for metals. Is this a logical assumption or is there documentation to show that greater or smaller number of applications are generally applied to home gardens?

Monofills

For the most part, EPA is using pollutant limits to protect human health and the environment from potential adverse impacts of the disposal of sewage sludge in monofills. However, the Agency has included restrictions on the location of monofills and on other practices to ensure human health and the environment are adequately protected. Are the requirements sufficient? Should the Agency include additional requirements, such as ground-water monitoring or corrective action, or eliminate some requirements as redundant or inconsistent with the primary approach of controlling what is disposed of in the monofill (i.e., pollution prevention as opposed to pollutant containment)?

The Agency has not analyzed the effect of synthetic liners in attenuating the migration of pollutants to the ground water. Neither has it factored in the use of synthetic liners in situations for which case-by-case limits are calculated. The soil characteristics of natural clay liners could be used in the site-specific analysis. How should the Agency analyze the attenuation factor of synthetic liners?

EPA is proposing that owners and operators of facilities develop a closure plan. The plan is to ensure that for 10 years a final cover is maintained, gas venting is monitored, and access restrictions are maintained. Since data show that sewage sludge decomposes within 4 to 5 years, does 10 years

provide a sufficient margin of safety for owners and operators to restrict the use of the land for other purposes?

Owners and operators will be required to determine the class of ground water under their monofill. Are the definitions and guidance sufficiently clear to allow such determinations to be made? The class of ground water under the monofill has a major effect on the assumptions used to establish the pollutant concentrations.

Pollutant limits for monofills must be determined with site-specific data when the distance from the sewage sludge unit to the monofill boundary is less than 150 meters and where the background pollutant concentration in the ground water exceeds the maximum contaminant level (MCL). Under the latter case, pollutant concentrations would be established so that there is no further degradation of the ground water. Is this approach appropriate when, for monofills located over other classes of ground water, degradation is allowed as long as the pollutant concentrations in the ground water do not exceed the MCL? Should EPA establish pollutant limits such that there is no degradation of any ground water, whether or not that ground water is used for drinking water?

Pollutant limits may be determined using site-specific data if the parameters at the monofill differ from those on Table 6 in § 503.33. Are these the appropriate parameters? Will there be difficulties in measuring any of the parameters? Should other parameters, such as the use of synthetic liners, be included in case-by-case pollutant concentrations?

In today's proposal the Agency is seeking comment on whether it should use 5 micrograms per liter, the proposed MCL for lead which is measured at the water treatment facility, or 10 micrograms per liter, which is the threshold value for a treatment plan if a certain number of "morning first draw samples" exceed the value as the basis of the numerical concentration for lead in sludge disposed of in monofills. The Agency is soliciting comments on the appropriate value it should use.

The Agency is also proposing that sewage sludge placed in monofills meets the Class B pathogen reduction requirements. Are the pathogen reduction requirements appropriate?

Surface Disposal Sites

EPA is soliciting information on the size, location, and characteristics of surface disposal sites. The Agency has proposed that sewage sludge placed on surface disposal sites for more than a year come under the requirements of

today's proposal. Is the Agency correct in assuming that sewage sludge placed on surface disposal sites for less than a year is more likely to be used in treating sewage sludge rather than in its disposal?

The Agency is proposing to use the 98th-percentile pollutant concentrations for sewage sludge disposed of on surface disposal sites because of its belief that surface disposal sites are small and that the pollutants in the sludge are unlikely to result in significant human health or environmental exposure. Are surface disposal sites usually small and are they generally located within the property boundary of the treatment work? As the Agency develops the exposure assessment model for surface disposal sites, it will be collecting information that should confirm or refute these premises.

Except for covers and a closure plan, the general requirements and management practices for surface disposal are similar to those for monofills and, in other cases, to dedicated, non-agricultural land application. Are the distinctions in these three methods of disposal appropriate? Should the three methods of disposal be consolidated? Or is there sufficient justification to maintain the distinction?

Pathogen Reduction and Vector Attraction Reduction Requirements

Until EPA establishes a relationship between infectious dose and disease and develops a model to simulate the movement and attenuation of pathogenic organisms in the environment, the Agency is proposing a combination of performance-based technology requirements and time periods during which access to the land and the growing and harvesting of certain crops is restricted. Are there other approaches that the Agency should consider?

The relative reductions in pathogenic organisms and the numbers of indicator organisms that the Agency is proposing are based on limited research and the Agency's experience with different types of treatment technologies. The Agency is requesting information that shows either that greater reductions are likely to occur or that the Agency's assessment of the reductions likely to occur was overoptimistic.

Incineration

A major issue on which the Agency is seeking public comment is the proposal to control the emission of organic pollutants through a limitation on the concentration of total hydrocarbons in the emissions. Should other organic

pollutants have been used in deriving the risk specific air concentration for total hydrocarbon emissions? Does the flame ionization detector, in conjunction with the correction factors included in the equation, limit the level of organic emissions to an incremental carcinogenic risk level of 1×10^{-6} ? Should the Agency establish a national cap for total hydrocarbon emissions or calculate, as proposed, a limit for each facility?

The Agency is soliciting data that correlates organic emissions, carbon monoxide levels, and total hydrocarbon emissions from multiple hearth, fluidized bed, and other types of incinerators which are similar to those firing sewage sludge. As an alternative to limiting hydrocarbon emissions, should the Agency consider using "good" performance standards, such as a 100-ppm limit, for carbon monoxide? Because data are lacking on good sewage sludge incinerator performance, should the Agency use the organic pollutant-by-organic pollutant health-based approach? Are there other approaches that the Agency should consider that would limit not only the organic pollutants that are fed into the incinerator, but also the organic pollutants that are formed by the combustion process?

In deriving the risk specific air concentrations for chromium and nickel, the Agency made the assumption that hexavalent chromium was one percent of the chromium emissions and that nickel subsulfide was 100 percent of the nickel emissions. Are there data to show that alternative percentages of hexavalent chromium and nickel subsulfide should have been used?

The Agency is requesting public comment on its proposal to use 25 percent of the NAAQS for lead as the basis for the lead limit. In light of the significant health effects from the emission of lead from sewage sludge incinerators, would 10 percent of the NAAQS have been a more appropriate basis?

Are the values that the EPA is proposing for temperature and oxygen content of the exit gas reasonable for sewage sludge incinerators? The Agency is soliciting data from tests that may support or question the proposed values. Should the Agency have specified requirements for incinerator ash and incinerator scrubber water? If so, how would these requirements differ from those already in place under other regulatory programs?

The Agency is soliciting comments on whether to deny owners or operators the opportunity to obtain credit for an increase in the height of their stacks,

after the effective date of the rule, as a means of complying with the numerical limits in the rule. Raising the stack height increases the amount of dispersion, thereby reducing the concentration of the exposure that reaches the MEL. However, raising the stack does not reduce the mass emission of the pollutants. National cancer incidence, therefore, may not change significantly from increasing stack height rather than installing constant controls (e.g., wet electrostatic precipitators (ESPs) and after-burners).

Use Of The Numerical Limits

The pollutant limits included in today's proposal are based on extensive data and analysis. The proposal raises many precedential scientific, technical and policy issues. Therefore, depending on results of the National Sewage Sludge and comments on the proposed rule, the Agency may revise some of the limits. It would not be advisable for permit writers to use the proposed limits in permits in advance of the final issuance of the "Guidance For Writing Case-By-Case Permit Requirements for Municipal Sewage Sludge".

This Guidance Document was developed to assist permit writers in developing permits for sewage sludge prior to the technical standards in today's proposal. The Guidance document is based on existing Federal and State requirements. It is not inconsistent with today's proposal. Rather, today's proposal goes beyond the Guidance document. Revisions to the Guidance document will assist permit writers in giving the appropriate weight to the numerical limits in today's proposal. These revisions should be available by September 30, 1989.

Related Requirements

Monitoring, Record Keeping And Reporting

The Agency is proposing sewage sludge monitoring, record keeping, and reporting requirements with the Part 503 requirements. However, the Agency is also considering placing such requirements in the State program management requirements (40 CFR Part 501) and in the National Pollutant Discharge Elimination System permitting requirements (40 CFR Parts 222-224). Comments are solicited on this. In addition, the Agency is soliciting comments on the frequency with which it is proposing to have facilities test their sewage sludge, the sampling and analysis protocols that are to be used in testing and analyzing the sewage sludge, and the record keeping and reporting

requirements that the Agency is proposing. The Agency recognizes that the proposed requirements are minimum requirements and that many States have much more frequent and extensive monitoring, record keeping, and reporting requirements. Should the Agency specify more frequent sewage sludge monitoring requirements? Should the Agency base the sewage sludge monitoring requirements on factors other than wastewater flow (e.g. percent industrial influent to the facility) or should the Agency establish a uniform frequency for the first year and then allow less frequent testing based on the variations seen in the facility's sludge quality?

The Agency is proposing different record retention requirements, depending on the use or disposal method. When sewage sludge is applied to agricultural land, the records must be kept for the life of the publicly owned treatment work (POTW) to ensure that the cumulative pollutant loading rates for metals are not exceeded. For the disposal of sewage sludge in monofills, records must be kept for 10 years, the proposed closure period. For all other use or disposal methods, the Agency is proposing that records be retained for 5 years, the period of time proposed for the State program management regulations. As an alternative, the Agency also considered record retention requirements of 3 years. Should the Agency have a single record retention requirements for all use or disposal methods? Do the distinctions among the use or disposal methods justify different record retention requirements.

Removal Credits

The Agency is proposing to allow eligible POTWs to revise pretreatment standards and issue removal credits for pollutants in three situations. First, removal credits would be available for the pollutants that are regulated under the use or disposal method employed by the POTW. Removal credits would also be available for the pollutants in sewage sludge disposed of in MSWLFs in compliance with 40 CFR Part 258. Finally, removal credits would be available for pollutants that the Agency evaluated without establishing numerical limits, if a POTW employs the disposal method for which the pollutant was evaluated, because EPA concluded that, even under the worst conditions, the pollutant did not interfere with the use or disposal method.

The list of organic pollutants on Table 11 in § 503.72 includes only those organic pollutants listed in IRIS. Some organic pollutants, such as vinyl chloride, are not presently listed in IRIS

because their human health criteria are undergoing Agency review. IRIS changes periodically. How should the Agency revise and update Table 11? Adding pollutants to Table 11 will require recalculating a human health criterion for total hydrocarbons and adjusting the risk specific concentration.

The Agency is soliciting comment on the proposal to limit removal credits to pollutants regulated under a use or disposal method included in today's proposal when a POTW employs use or disposal methods other than disposal in MSWLFs. The Agency also solicits comments on its decision not to allow removal credits for pollutants when the concentration of those pollutants lead to the determination that the sewage sludge is hazardous, even though disposal of this sludge in conformance with 40 CFR Part 261-268 constitutes compliance with Section 405(d) of the CWA.

Impact

The Agency projected that the benefits of complying with this rule include the following: a reduction of 9.5 annual cancer cases (from 12.3 annual incremental cancer cases attributable to the use or disposal of sewage sludge); and a reduction of 5,266 incidences of individuals who experience adverse effects from lead (from 6,139). This projection is a net increase in benefits due to the fact that, in some instances (e.g., incineration), the anticipated compliance strategy poses greater risk. Furthermore, in projecting the reduction in cancer and lead cases, the Agency assumed that incinerators would install constant controls (e.g., after-burners and wet ESPs).

To come into compliance with the rule, the Agency projected that 5,300 POTWs will have annual incremental costs of approximately \$157.7 million dollars. Some of these costs are pursuant to monitoring, reporting, and record keeping requirements. Other costs are due to the costs of putting on constant controls or using a different use or disposal method. It is anticipated that 509 POTWs will have to take positive actions to come into compliance with today's proposal. The projected cost figure does not account for site-specific modeling to bring some POTWs into compliance with the proposed numerical limits. Nor does it reflect that some POTWs may strengthen their pretreatment programs to improve the quality of their sewage sludge.

To improve the Agency's analyses, comments are requested on the following:

- Procedures for assigning a particular sludge quality to an individual facility;
- Relationship of industrial flow to the quality and amount of the sewage sludge generated;
- Procedures used to assign a use or disposal method to a particular facility;
- Baseline costs of the disposal practices;
- Baseline costs for testing, monitoring, and record keeping requirements;
- Assumptions in determining if a facility complies with the requirements, particularly the annual pollutant loading rates for agricultural land application;
- Assumptions concerning how facilities would comply with the requirements, particularly the assumptions made on the alternative practices that would be used;
- Assumptions used to determine the retrofit technologies owners and operators of sewage sludge incinerators would use to comply with today's proposal;
- Additional data needed to make assumptions on the feasibility of pretreatment by industrial dischargers;
- Assumptions used in projecting the benefits of the rule; and
- Definition of a small entity.

While the foregoing discussion lists the major issues, data and information of interest to the Agency, any provision of the rule is open for public comment. The Agency will carefully evaluate all public comments and will respond to the comments in the Notice modifying today's proposal and in promulgating the rule.

PART XIII. AVAILABILITY OF TECHNICAL INFORMATION ON THE PROPOSED RULE

Availability of Numerical Criteria Computational Programs

The following numerical criteria computational programs are available:

- Land Application/Distribution and Marketing—RAMS Model for terrestrial Pathways—PB 89-138739, Cost \$55.00.
- Land Application/Distribution and Marketing—SLAPMAN Model for surface runoff—PB 89-138747, Cost \$55.00.
- Landfill (Monofill)—Sludgeman Model—PB 89-138754, Cost \$60.00.
- Incineration—Sludge Incineration Model—PB 89-138762, Cost \$120.00.

Programs on IBM PC compatible disks may be ordered from: National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, ATTN: Sales, Telephone No. (703) 487-4650.

Please specify PB number when ordering.

Availability of the Proposed Rule and Preamble

The proposed rule and preamble may be obtained by contacting: Dr. Alan Rubin, Sewage Sludge Task Force (WH-585), United States Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (202) 475-7301.

Availability of Technical Support Documents

The following technical support documents are available:

- Technical Support Document for Land Application and Distribution and Marketing of Sewage Sludge—PB 89-136576, Cost: \$42.95 (A19, paper copy); \$6.95 (A01, microfiche).
- Technical Support Document for Landfilling of Sewage Sludge—PB 89-136584, Cost: \$15.95 (A05, paper copy); \$6.95 (A01, microfiche).
- Technical Support Document for Incineration of Sewage Sludge—PB 89-136592, Cost: \$49.95 (A22, paper copy); \$6.95 (A01, microfiche).
- Technical Support Document for Surface Disposal of Sewage Sludge—PB 89-136600, Cost: \$21.95 (A07, paper copy); \$6.95 (A01, microfiche).
- Technical Support Document for Pathogen Reduction in Sewage Sludge—PB 89-136618, Cost: \$13.95 (A03, paper copy); \$6.95 (A01, microfiche).

These documents may be ordered from the National Technical Information Service.

Availability of Aggregate Impact Analysis Methodology

The following aggregate impact analysis methodology may be ordered from the National Technical Information Service:

- Human Health Risk Assessment for Municipal Sludge Disposal; Benefit of Alternative Regulatory Options—PB 89-136626, Cost: \$42.95 (A18, paper copy).

Availability of the Regulatory Impact Analysis and Information Collection Request Documents

The following documents supporting this proposed regulation may be ordered from the National Technical Information Service:

- The Regulatory Impact Analysis—PB 89-136634, Cost: \$42.95 (A20, paper copy); \$6.95 (A01, microfiche).
- Information Collection Request Documents—PB 89-136642, Cost: \$21.95 (A06, paper copy); \$6.95 (A01, microfiche).

Availability of EPA's Science Advisory Board Review of Risk Assessment Methodologies

The following Science Advisory Board report may be ordered from the National Technical Information Service.

- The Review of the Risk Assessment Methodologies for Land Application/Distribution and Marketing, Landfilling, and Incineration of Sewage Sludge—PB 89-136659, Cost: \$15.95 (A05, paper copy); \$6.95 (A01, microfiche).

Access to IRIS

Those outside EPA can obtain an IRIS account by contacting: Mike McLaughlin, DIALCOM, Inc./Federal Systems Division, 600 Maryland Avenue, SW., Washington, DC 20024. Telephone: (202) 488-0550.

IRIS is also available through the Public Health Network (PHN) of the Public Health Foundation. Call Paul Johnson at (202) 898-5600 for more information. PHN is only available to local, State, and Federal public health officials.

IRIS is currently available on the NIH National Library of Medicine's TOXNET systems. Call (301) 496-6531 for details.

List Of References Used In Preamble

1. American Petroleum Institute (API). 1983. Land Treatment Practices in the Petroleum Industry. Environmental Research and Technology, Inc., Concord, MA.
2. Anthony, R.G. and G.W. Wood. 1979. Effects of Municipal Wastewater Irrigation on Wildlife and Wildlife Habitat. Pp. 213-223. In: Sopper, William E. and Sonja N. Kerr. 1979. Utilization of Municipal Sewage Effluents and Sludge on Forest and Disturbed Land. Pennsylvania State University Press, University Park, PA.
3. Association for Utilization of Sewage Sludge. 1988. Proceedings-Second International Symposium on Land Application of Sewage Sludge. Tokyo, Japan.
4. Baxter, H.C., M. Aquiler, and K. Brown. 1983. Heavy Metals and Persistent Organics at a Sewage Sludge Disposal Site. J. Environ. Qual. 12(3):311-316.
5. Brown, D.S., and J.D. Allison. 1987. MINTEQA1, An Equilibrium Metal Speciation Model: User's Manual. U.S. Environmental Research Laboratory, Athens, GA. EPA/600/3-87-012.
6. Brown, R.E. 1975. Significance of Trace Metals and Nitrates in Sludge Soils. J. Water Pollut. Control Fed. 47:2863-2875.
7. Chaney, R.L. 1973. Crop and Food Chain Effects of Toxic Elements in Sludges and Effluents. Pp. 129-141. In: Proc. of the Joint Conf. on Recycling Municipal Sludges and Effluents on Land, Champaign, IL. (July 9-13, 1973). National Assoc. State Univ. and Land Grant Colleges, Washington, DC.
8. Chang, A.C. and A.L. Page. 1985. Personal Communication. Dept. of Soil and Environmental Sciences, Univ. of California, Riverside, CA. (As cited in Page, A.L., T.G. Logan, J.A. Ryan, 1987.)
9. Cole, D.W. 1980. Response of Forest Ecosystems to Sludge and Wastewater Applications—A Case Study in Western Washington. In: U.S. EPA. 1980. Utilization of Municipal Wastewater and Sludge for Land Reclamation and Biomass Production. Washington, DC. EPA 430/9-81-012.
10. Delos, C.G., et al. 1984. Toxic Substances. Technical Guidance Manual for Performing Waste Load Allocations, Book II—Streams and Rivers. Toxic Substances. U.S. EPA, Office of Water Regulations and Standards, Washington, DC. EPA-440/4-84-022.
11. Dowdy, R.H., and W.E. Larson. 1975. The Availability of Sludge-Borne Metals to Various Vegetable Crops. J. Environ. Qual. 4:278-282.
12. Drees, L.M. 1988. Effect of Lime and Other Precipitants or Sludge Conditioners on Conversion of Chromium to the Hexavalent State When Sludge is Incinerated. Final Report. EPA Contract 68-03-3346.
13. Felmy, A.R., D.C. Girvin, and E.A. Jenne. 1984. MINTEQ—A Computer Program for Calculating Aqueous Geochemical Equilibrium. EPA-600/3-84-032.
14. Gensile, R.W., and D.M. Albrinck. 1982. Atmospheric Emissions of Metals from Sewage Sludge Incineration. Air Poll. Control Assoc. 32(11) (November).
15. Goring, C.A.I., and J.W. Hanaker. 1972. Organic Chemicals in the Soil Environment. Vol. 1. Marcel Dekker, Inc., NY.
16. Guenzi, W.D., et al. (ed.). 1974. Pesticides in Soil and Water. (Listed. Soil Sci. Soc. Amer., Madison, WI.)
17. Haghir, F. 1974. Plant Uptake of Cadmium as Influenced by Cation Exchange Capacity, Organic Matter, Zinc, and Soil Temperature. J. Environ. Qual. 3:180-183.
18. Hallden, J.A., C.J. Pederson, and J.P. St. John. 1987. Steele Brook Pilot Study for Implementing EPA's Toxic Control Policy. Phase II Technical Analysis. U.S. EPA, Office of Water Regulations and Standards, Washington, DC.
19. Honeyman, B.D., and P.H. Santschi. 1988. Metals in Aquatic Systems. Environ. Sci. Technol. 22:862.
20. Hyde, H.C., et al. 1979. Effect of Heavy Metals in Sludge on Agricultural Crops. J. Water Pollut. Control Fed. 51:2475-2486.
21. HydroQual, Inc. 1986. Technical Guidance Manual for Performing Waste Load Allocations, Book IV: Lakes, Reservoirs and Impoundments. Toxic Substances Impact. U.S. EPA, Office of Water Regulations and Standards, Washington, DC. EPA-440/4-87-002.
22. LaGoy, P.K. 1987. Estimated Soil Ingestion Rates for Use in Risk Assessment. Risk Analysis 7:355.
23. Majima, T., et al. 1977. Studies of Pyrolysis Process of Sewage Sludge. Pp. 381-396. In: Prog. Wat. Tech. (Vol. 9). Pergamon Press, Great Britain.
24. National Center for Health Statistics. 1981. Plan and Operation of the Second National Health and Nutrition Examination Survey (1976-1980). Vital and Health Statistics Series 1(15).
25. National Well Water Association. 1985. DRASTIC: A Standardized System for

Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings. Ada, OK.

26. Page, A.L., T.G. Logan, and J.A. Ryan. 1987. Land Application of Sludge. Lewis Publishers, Inc., Chelsea, MI.

27. PEI Associates, Inc. 1987. Sewer Sludge Incineration: ISCLT Model Sensitivity Analysis. U.S. EPA, Office of Water Regulations and Standards, Washington, DC.

28. Pennington, J.A.T. 1983. Revision of the Total Diet Study Food Lists and Diets. J. Am. Diet. Assoc. 82:166-173.

29. Peterson, M.S., L.W. Lion, and C.A. Shoemaker. 1988. Influence of Vapor-Phase Sorption and Diffusion on the Fate of Trichloroethylene in an Unsaturated Aquifer System. Environ. Sci. Technol. 22:571.

30. Pirkle, J.L., et al. 1985. The Relationship Between Blood Lead Levels and Blood Pressure and Its Cardiovascular Risk Implications. Amer. J. Epidemiol. 121(2).

31. Seaker, Eileen M., and W.E. Sopper. Reclamation of Bituminous Strip-mine Spoil Banks with Municipal Sewage Sludge. Reclamation and Revegetation Research. 3:87-100 (As cited in Seaker, Eileen M. 1985. Uses of Philadelphia Mine Mix for Strip-mine Reclamation in Western Pennsylvania. City of Philadelphia Water Department, Philadelphia, PA.)

32. Singh, D. 1983. The Effect of Land Application of Sludge on Concentrations of Certain Sludge-Associated Toxic Chemicals in Michigan Soils and Crops (Report). MI Dept. of Ag., Toxic Substances Division, Lansing, MI.

33. Sopper, William E., and Sonja N. Kerr. 1980. Mine Land Reclamation with Municipal Sludge—Pennsylvania's Demonstration Program. (As cited in Cole, 1980. Pp. 55-87.)

34. Touchton, J.T., et al. 1976. Residual Effect of Liquid Sludge on Coastal Bermuda Grass and Soil Chemical Properties. J. Environ. Qual. 5:161-164.

35. U.S. EPA. 1979. Process Design Manual for Sludge Treatment and Disposal. EPA 625/1-79-011.

36. U.S. EPA. 1982. Fate of Priority Pollutants in Publicly-Owned Treatment Works. Vol. I. Effluent Guidelines Division. Washington, DC. EPA 440/1-82-303.

37. U.S. EPA. 1984. Environmental Regulations and Technology. Use and Disposal of Municipal Wastewater Sludge. Washington, DC.

38. U.S. EPA. 1984. Ground-Water Protection Strategy. Washington, DC.

39. U.S. EPA. 1985. Chromium Emissions from Sewage Sludge Incinerators. Office of Air and Radiation, Emission Standards and Engineering Division.

40. U.S. EPA. Chromium Screening Study Test Report. Sewage Sludge Incinerator No. 13 Detroit Water and Sewer Department, Detroit, Michigan. Office of Air Quality Planning and Standards. EMB Report 85-CHM-5.

41. U.S. EPA. 1985. Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge. Washington, DC.

42. U.S. EPA. 1985. Guideline for Determination of Good Engineering Practice Stack Height. EPA-450/4-80-023R.

43. U.S. EPA. 1988. Air Quality Criteria for Lead (Volumes I-IV). Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-83/028aF.

44. U.S. EPA. 1986. Guideline on Air Quality Models (Revised). Office of Air Quality Planning and Standards, Research Triangle Park, NC. EPA-450/2-18-027R.

45. U.S. EPA. 1986. Reducing Lead in Drinking Water: A Benefits Analysis (Draft Final Report). Office of Policy, Planning, and Evaluation.

46. U.S. EPA. 1986. Sludge Incinerator Air Quality Modeling. Office of Air Quality Planning and Standards, Research Triangle Park, NC.

47. U.S. EPA. Chromium Emissions from a Sewage Sludge Incinerator, Draft Report. EPA Contract 68-03-3346.

48. U.S. EPA. 1987. Development of Risk Assessment Methodology for Land Application and Distribution and Marketing of Municipal Sludge. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. ECAO-CIN-489.

49. U.S. EPA. 1987. Integrated Risk Information System Supportive Documentation, Volume I. Office of Health and Environmental Assessment, Washington, DC. EPA/600/8-86/032a.

50. U.S. EPA. 1987. Review of Technical Documents Supporting Proposed Revisions to EPA Regulations for the Disposal/Reuse of Sewage Sludge under Section 405(d) of the Clean Water Act. Science Advisory Board, Environmental Engineering Committee, Washington, DC. SAB-EEC-87-015.

51. U.S. EPA. 1988. Analytical Methods for the National Sewage Sludge Survey. Washington, DC.

52. U.S. EPA. 1988. Guidance for Writing Case-by-Case Permit Requirements for Municipal Sewage Sludge. Draft. Office of Water Experiment. Permits Division.

53. U.S. EPA. 1988. Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy. Washington, DC.

54. U.S. EPA. 1988. Probabilistic Ground-Water Classification at the Forty-Six Currently Active Sewage Sludge Monofills. Washington, DC.

55. U.S. EPA. Sampling Procedures and Protocols for the National Sewage Sludge Survey. Washington, DC.

56. U.S. EPA. 1988. Technical Support Document: Incineration of Sewage Sludge (Draft). Office of Water.

57. U.S. EPA. 1988. Technical Support Document: Land Application and Distribution and Marketing of Sewage Sludge (Draft). Office of Water Regulations and Standards, Washington, DC.

58. U.S. EPA. 1988. Technical Support Document: Landfilling of Sewage Sludge (Draft). Washington, DC.

59. U.S. EPA. 1988. Technical Support Document: Surface Disposal of Sewage Sludge (Draft). Office of Water Regulations and Standards, Washington, DC.

60. U.S. Geological Survey. 1981. Facing Geologic and Hydrologic Hazards. Geologic Survey Professional Paper 1240-B. Washington, DC.

61. Van Genuchten, M. 1985. Convective-Dispersive Transport of Solutes Involved in Sequential First-order Decay Reactions. J. Computers Geosci. 11:129.

62. Water Pollution Control Federation. 1988. Incineration, Manual of Practice No. OM-11. Alexandria, VA.

63. Water Resources Council. 1977. Guidelines for Determining Flood Flow Frequency. Bulletin Number 17A.

64. Webber, L.R., and E.G. Beauchamp. 1979. Cadmium Concentrations and Distribution in Corn (*Zea mays* L.) Grown on a Calcareous Soil for Three Years After Three Annual Sludge Applications. J. Environ. Sci. Health B14(5):454-474.

65. Yeh, G.T. 1981. AT123D: Analytical Transient One-, Two-, and Three-Dimensional Simulation of Waste Transport in the Aquifer System. Oak Ridge National Laboratory, Environmental Sciences Division, Oak Ridge TN. ORNL-5602.

66. U.S. EPA. 1986. Development of Risk Assessment Methodology for Municipal Sludge Landfilling. Environmental Criteria and Assessment Office, Cincinnati, OH. ECAO-CIN-485.

67. U.S. EPA. 1985. Environmental Science and Engineering. Exposure to Airborne Contaminants Released from Land Disposal Facilities—A Proposed Methodology.

68. U.S. EPA. 1988. Personal Communication of E.P. Crumpler with Shireo Co., Dallas, TX, April 6, 1988.

69. U.S. EPA. 1987. Descriptive Statistics on Contaminants in Municipal Sludge Based on the EPA 40-POTW Study. Science Applications International Corporation. EPA Contract No. 68-01-8912.

70. Dowdy, R.H., et al. 1978. Growth and Metal Uptake of Snap Beans Grown on Sewage Sludge—Amended Soils, a Four-Year Field Study. J. Environ. Qual. 7:252-257.

71. Hajjar, L.M. 1985. Effect of Soil pH and the Residual Effect of Sludge Loading Rate on the Heavy Metal Content of Tobacco and Peanut and the Effect of Cd Solog. on the Cd Content of Various Cultivars of Grass. M.S. Thesis, North Carolina State U., Raleigh. (As Cited in: Page, A.L., T.H. Logan, and J.A. Ryan, 1987.)

72. Vlamis, J. et al. 1985. Zinc and Cadmium Uptake by Barley in Field Plots Fertilized Seven Years with Urban and Suburban Sludge. Soil Sci. 139:81-87. (As cited in: Page, A.L., T.H. Logan, and J.A. Ryan, 1987.)

73. U.S. EPA. 1983. Process Design Manual for the Land Application of Municipal Sludge. Municipal Environmental Research Laboratory, Cincinnati, OH. EPA-625/1-83-016.

74. U.S. EPA. 1988. Location Restrictions (Subpart B)—Criteria for Municipal Solid Waste Landfills (40 CFR Part 258)—Subtitle D of the Resource Conservation and Recovery Act (RCRA). Office of Solid Waste. Washington, DC.

75. U.S. EPA. 1987. The Effects of Municipal Wastewater Sludge on Leachates and Gas Production from Sludge-Refuse Landfills and Sludge Monofills. Water Engineering Research Laboratory, Office of Research and Development, Cincinnati, OH.

76. U.S. EPA. 1987. Task Report: Cyanide Levels in Municipal Sewage Sludge In: U.S. EPA. Water Engineering Research Laboratory Monthly Report. Office of Research and Development, Cincinnati, OH.

77. U.S. EPA. 1988. Operating Criteria (Subpart C)—Criteria for Municipal Solid Waste Landfills (40 CFR Part 258)—Subtitle D of the Resource Conservation and Recovery

Act (RCRA). Office of Solid Waste.
Washington, DC.

78. U.S. EPA. 1988. Technical Support Document: Pathogens and Vectors. (Draft). Office of Water Regulations and Standards. Washington, DC.

79. U.S. EPA. 1986. Development of a Qualitative Pathogen Risk Assessment Methodology for Municipal Sludge Landfilling. Environmental Criteria and Assessment Office, Office of Research and Development, Washington, DC.

80. U.S. EPA. 1983. The Record of Proceedings on the OWSR Municipal Sewage Sludge Committees. Washington, DC.

81. U.S. EPA. 1988. Supporting Statement for the National Sewage Sludge Survey. Washington, DC.

82. U.S. EPA. 1988. Review of the National Ambient Air Quality Standards for Lead: Exposure Analysis Methodology and Validation (Draft). Washington, DC.

83. Cools, A., et al. 1976. Biochemical Response of Male Volunteers Ingesting Inorganic Lead for 49 Days. *Int. Arch. Occup. Environ. Health* 38:129-139.

84. Sherlock, J., et al. 1982. Assessment of Lead Intakes and Dose-Response for a Population in Ayr Exposed to a Plumbosolvent Water Supply. *Hum. Toxicol.* 1:115-122.

85. U.S. EPA. 1986. Development of Risk Assessment Methodology for Municipal Sludge Incineration. Environmental Criteria and Assessment Office, Cincinnati, OH. ECAO-CIN-486.

86. Abron-Robinson, L.A. and L.W. Weinberger. 1984. Sewage Sludge Versus Commercial Methods for Reclaiming Strip Mine Soil. U.S. EPA, Municipal Environmental Research Laboratory and Peer Consultants. Cincinnati, OH. EPA/600/2-84/155.

87. U.S. EPA. 1988. POTW Sludge Sampling and Analysis Document (Draft). Washington, DC.

PART XIV: CHANGES IN 40 CFR PART 257

As described in previous parts of the preamble, the proposed requirements in 40 CFR Part 503 establish standards to protect human health and the environment from any reasonably anticipated adverse effects of each regulated pollutant in sewage sludge. These standards provide specific pollutant concentrations, management practices, and other requirements for the final use or disposal of sewage sludge when the sewage sludge is applied to agricultural and non-agricultural land, distributed and marketed, disposed of in monofills or on surface disposal sites, or incinerated. The standards apply to publicly and privately owned treatment works that generate or treat domestic sewage sludge and to any person who uses or disposes of sewage sludge from such treatment works.

Existing requirements in 40 CFR Part 257 are applicable to all solid waste disposal facilities and practices regulated under sections 4004 and 4010 of the Resource Conservation and

Recovery Act. With certain exceptions listed in § 257.1(c), the requirements in 40 CFR Part 257 apply to all types of facilities (i.e., landfills, surface disposal sites, land application units, and waste piles) used for disposal of solid waste, as well as all types of non-hazardous solid wastes (i.e., municipal, industrial, commercial, agricultural, mining, and oil and gas waste). Part 257 also applies to the disposal of sewage sludge from publicly and privately owned treatment works. However, because Part 257 covers only a limited number of pollutants and use and disposal practices and because EPA is proposing comprehensive regulations under 40 CFR Part 503, EPA proposes to amend 40 CFR Part 257 to exclude sewage sludge.

List of Subjects

40 CFR Part 257

Reporting and record keeping requirements, waste disposal.

40 CFR Part 503

Sewage sludge use and disposal, monitoring, reporting and record keeping requirements.

Dated: January 18, 1989.

Lee M. Thomas,
Administrator.

For reasons set out in the preamble, Title 40 of the Code of Federal Regulations is proposed to be amended as set forth below:

PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

1. The authority citation for Part 257 is revised to read as follows:

Authority: Section 1008(a)(3) and section 4004(a), Pub. L. 94-580, 90 Stat. 2803 and 2815 (42 U.S.C. 6907(a)(3) and 6944(a)).

2. Section 257.1 is amended by revising paragraphs (b), (c)(3) and (c)(4) to read as follows:

§ 257.1 Scope and purpose.

(b) These criteria do not apply to the use or disposal of sewage sludge under section 405(d) of the Clean Water Act, as amended.

(c) * * *

(3) The criteria do not apply to the land application of domestic sewage or treated domestic sewage.

(4) The criteria do not apply to the location and operation of septic tanks.

* * *

3. Section 257.2 is amended by

revising the definition for "sludge" and "solid waste" to read as follows:

§ 257.2 Definitions.

* * *

"Sludge" means any solid, semi-solid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect.

"Solid waste" means any garbage, refuse, sludge from a privately owned treatment plant operated in conjunction with commercial or industrial manufacturing or processing facilities, water supply treatment plant, or air pollution facility and other discarded material, included solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended, (86 Stat. 880), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

* * *

4. Section 257.3-4 is amended by revising paragraph (b)(1) introductory text to read as follows:

§ 257.3-4 Ground water.

* * *

(b)(1) For purposes of section 1008(a)(3) of the Act, a party charged with open dumping may demonstrate that compliance should be determined at an alternative boundary in lieu of the solid waste boundary. The court shall establish an alternative boundary only if it finds that such a change would not result in contamination of ground water which may be needed or used for human consumption. This finding shall be based on analysis and consideration of all of the following factors that are relevant:

* * *

§ 257.3-6 [Amended]

5. Section 257.3-6 is amended by removing paragraphs (b) and (c).

It is proposed to add Part 503 to proposed Subchapter O¹ to read as follows:

¹ 51 FR 4463, February 4, 1986.

SUBCHAPTER O—SEWAGE SLUDGE**PART 503—TECHNICAL STANDARDS FOR THE USE AND DISPOSAL OF SEWAGE SLUDGE****Subpart A—General Provisions**

Sec.

- 503.1 Purpose and applicability.
- 503.2 Relationship to other requirements.
- 503.3 State authority.
- 503.4 Exclusions.
- 503.5 General definitions.

Subpart B—Land Application of Sewage Sludge

- 503.10 Applicability.
- 503.11 Specialized definitions.
- 503.12 Land application—general requirements.
- 503.13 Agricultural land—national pollutant limits.
- 503.14 Agricultural land—management practices.
- 503.15 Non-agricultural land—national pollutant limits.
- 503.16 Non-agricultural land—management practices.
- 503.17 Pathogen and vector attraction reduction requirements.

Subpart C—Distribution and Marketing of Sewage Sludge

- 503.20 Applicability.
- 503.21 Specialized definitions.
- 503.22 Distribution and marketing—general requirements.
- 503.23 Distribution and marketing—national pollutant limits.
- 503.24 Distribution and marketing—management practices.
- 503.25 Pathogen and vector attraction reduction requirements.

Subpart D—Disposal of Sewage Sludge in Monofills

- 503.30 Applicability.
- 503.31 Specialized definitions.
- 503.32 Monofills—general requirements.
- 503.33 Monofills—pollutant limits.
- 503.34 Monofills—management practices.
- 503.35 Pathogen reduction requirements.

Subpart E—Disposal of Sewage Sludge on Surface Disposal Sites

- 503.40 Applicability.
- 503.41 Specialized definitions.
- 503.42 Surface disposal sites—general requirements.
- 503.43 Surface disposal sites—national pollutant limits.
- 503.44 Surface disposal sites—management practices.
- 503.45 Pathogen and vector attraction reduction requirements.

Subpart F—Pathogen and Vector Attraction Reduction Requirements

- 503.50 Applicability and scope.
- 503.51 Specialized definitions.
- 503.52 Pathogen reduction requirements.
- 503.53 Vector attraction reduction requirements.

Subpart G—Incineration of Sewage Sludge

- 503.60 Applicability.

- 503.61 Specialized definitions.
- 503.62 Incineration—general requirements.
- 503.63 Incineration—pollutant limits.
- 503.64 Incineration—management practices.

Subpart H—Removal Credits

- 503.70 Applicability and description of a removal credit.
- 503.71 Specialized definition.
- 503.72 Pollutants for which removal credits may be authorized.

Subpart I—Monitoring, Record Keeping, and Reports

- 503.80 Purpose.
- 503.81 General.
- 503.82 Land application of sewage sludge.
- 503.83 Distribution and marketing of sewage sludge.
- 503.84 Disposal of sewage sludge in monofills.
- 503.85 Disposal of sewage sludge on surface disposal sites.
- 503.86 Incineration of sewage sludge.

Appendix A—Ground Water Pollutant Criteria**Appendix B—Procedure To Determine Annual Whole Sludge Application Rate****Appendix C—Procedure To Determine The Number Of Applications (Years) That Sewage Sludge May Be Applied To Agricultural Land****Appendix D—Procedure To Calculate Maximum Combustion Gas Flow Rate**

Authority: Sections 405 (d) and (e), Clean Water Act, as amended by Pub. L. 95-217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100-4, Title IV, Sec. 406 (a), (b), 101 Stat. 71, 72.

Subpart A—General Provisions**§ 503.1 Purpose and applicability.**

(a) *Purpose.* The purpose of this part is to establish standards for the use or disposal of sewage sludge that is generated during the treatment of domestic sewage in treatment works or that is treated in treatment works. This regulation contains numerical pollutant limitations, management practices, and other requirements for the use and disposal of sewage sludge which protects public health and the environment from any reasonably anticipated adverse effects of each regulated pollutant.

(b) *Applicability.* (1) This part establishes minimum requirements for the sewage sludge that is applied to agricultural and non-agricultural land, distributed and marketed, disposed of in monofills, disposed of on surface disposal sites, and incinerated.

(2) Any person who employs a method of final use or disposal identified in paragraph (b)(1) of this section must do so in accordance with this part.

(3) This part does not apply to processes used to treat municipal wastewater and domestic sewage or

processes used to treat sewage sludge prior to the final use or disposal of the sewage sludge.

(4) The determination of the manner in which sewage sludge is finally used or disposed of is a matter for local communities. Any use or disposal method may be used as long as the use or disposal is carried out in accordance with the requirements of this part.

§ 503.2 Relationship to other requirements.

(a) Permits for the use and disposal of sewage sludge are addressed in 40 CFR Parts 122 through 124.

(b) Requirements for the approval of State sewage sludge management programs are included in 40 CFR Part 501.

§ 503.3 State authority.

Nothing in this part precludes States from imposing more stringent requirements for any sewage sludge use or disposal method covered by this part.

§ 503.4 Exclusions.

(a) *Industrial sludge.* (1) This part does not apply to any sludge that is generated or treated by industrial wastewater treatment works treating industrial waste or wastewater or treating domestic sewage along with industrial waste or wastewater.

(2) Standards for the use and disposal of non-hazardous industrial sludge are established in 40 CFR Parts 257 and 258.

(b) *Hazardous sewage sludge.* (1) This part does not apply to sewage sludge determined to be hazardous in accordance with Appendix II of 40 CFR Part 261.

(2) Standards for the disposal of sewage sludge determined to be hazardous are established in 40 CFR Parts 261 through 268.

(3) Use or disposal of hazardous sewage sludge in compliance with the requirements in 40 CFR Parts 261 through 268 will constitute compliance with the requirements of section 405 of the Clean Water Act.

(c) *Incinerator ash.* (1) This part does not apply to the ash generated during the incineration of sewage sludge.

(2) Standards for the use and disposal of ash generated during the incineration of sewage sludge are established in 40 CFR Part 257, Part 258, or Parts 261 through 268.

(d) *Disposal of sewage sludge in municipal landfills.* (1) This part does not apply to sewage sludge that is disposed of in a landfill with municipal solid waste. Standards for the disposal of sewage sludge in municipal solid

waste landfills are established in 40 CFR Part 258.

(2) Treatment works disposing of their sewage sludge in municipal solid waste landfills must ensure that their sewage sludge meets the requirements of 40 CFR Part 258 and that the sewage sludge is sent to a State-permitted facility.

(3) Disposal of sewage sludge in compliance with 40 CFR Part 258 will constitute compliance with section 405 of the Clean Water Act.

(e) *Co-firing of sewage sludge.* This part does not apply to sewage sludge that is fired in an incinerator with other wastes.

(f) *Deepwell wet air oxidation systems.* The part does not apply to sewage sludge that is placed in deepwell wet air oxidation systems or to the location or operation of these systems.

(g) *Septic tanks.* This part does not apply to the location and operation of septic tanks, but does apply to septage that is pumped and collected for disposal.

(h) *Marine sanitation devices.* (1) This part does not apply to Type I or Type II marine sanitation devices, as defined in 33 CFR Part 159.

(2) This part does apply to the pumpings from Type III marine sanitation devices, as defined in 33 CFR Part 159, that are delivered to shore-side facilities for disposal.

§ 503.5 General definitions.

(a) CWA means the Clean Water Act (formerly referred to either as the Federal Water Pollution Act or the Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended by Pub.L. 95-217, Pub.L. 95-576, Pub.L. 96-483, Pub.L. 97-117 and Pub.L. 100-4.

(b) Domestic sewage is waste and wastewater from humans or from household operations that are discharged to or otherwise enter treatment works.

(c) Ground water is water below the land surface in a zone of saturation.

(d) Industrial wastewater treatment works are privately owned treatment works that treat waste and wastewater generated by industrial, manufacturing, and commercial processing facilities.

(e) Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under section 208 of the CWA, as amended. The definition includes a

special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, and an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, or disposal of sewage sludge.

(f) Person is an individual, association, partnership, corporation, municipality, State or Federal agency, or an agency or employee thereof.

(g) Pollutant means those organic or inorganic substances, or combinations of substances, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through the food-chain, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in such organisms or their offspring.

(h) Pollutant limit is a numeric limit for a pollutant that describes the maximum amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams of pollutant per kilogram of dry solids); the maximum amount of a pollutant that can be applied per unit area of land (e.g., kilograms per hectare); or the maximum amount of a pollutant per unit volume of air (e.g., micrograms per cubic meter).

(i) Publicly owned treatment works, or POTW, means any device or system used in the treatment (including recycling and reclamation) of domestic sewage or industrial waste of a liquid nature that is owned by a municipality or State entity.

(j) Septage is the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system or a holding tank when the system is cleaned and maintained.

(k) Sewage sludge is any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater and domestic sewage or the treatment of domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III marine sanitation device pumpings, and sewage sludge products.

(l) State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands,

and the Commonwealth of the Northern Mariana Islands.

(m) Treatment works are publicly owned treatment works owned by a State, or municipal entity or federally or privately owned treatment works that treat domestic sewage. Treatment works do not include septic systems. Privately owned industrial waste treatment works that process industrial, manufacturing, or commercial waste and wastewater along with domestic sewage are not included in this definition.

Subpart B—Land Application of Sewage Sludge

§ 503.10 Applicability.

This subpart applies to the application of sewage sludge to either agricultural or non-agricultural land and to any person who uses, disposes of, or distributes sewage sludge by or for application to either agricultural or non-agricultural land. Sewage sludge which is distributed and marketed in compliance with Subpart C is not subject to this subpart.

§ 503.11 Specialized definitions.

(a) Agricultural land is land to which sewage sludge is applied, in order to use the nutrient and soil conditioning properties of sewage sludge, for crops which are intended for direct or indirect human consumption or for animal feed for animals intended for human consumption. This includes land used as pasture for the grazing of animals.

(b) Annual pollutant loading rate is the maximum amount of a pollutant that may be applied to a unit area of land during a 365-consecutive-day period.

(c) Annual whole sludge application rate is the maximum amount of sewage sludge that may be applied to a unit area of land during a 365-consecutive-day period.

(d) Applier is a person who receives sewage sludge from treatment works or distributors and who is responsible for the proper application of the sewage sludge.

(e) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(f) Cumulative pollutant loading rate is the maximum amount of an inorganic pollutant that may be applied to a unit area of land.

(g) Dedicated land is land that is used for the disposal of sewage sludge. No attempt is made to use the nutrient and soil conditioning properties of the sewage sludge for a beneficial purpose on this land.

(h) Distributor is a person who receives sewage sludge from treatment works and delivers the sewage sludge to a user or another distributor.

(i) Feed crops are crops intended for consumption by animals.

(j) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands that are inundated by a base flood.

(k) Food crops are crops intended for human consumption.

(l) Forest land is land to which sewage sludge is applied in order to use the nutrient and soil conditioning properties of the sludge for the growth of the trees on the land.

(m) Land application is the application of liquid, de-watered, dried, or composted sewage sludge to the land. Sewage sludge may be sprayed or spread onto the surface of the land, injected below the surface of the soil, or incorporated into the soil.

(n) Non-agricultural land is land where sewage sludge is applied but where no food or feed crops are grown or animals are grazed. This includes, but is not limited to, forest land, reclaimed land, and dedicated land.

(o) Pasture land is land to which sewage sludge is applied in order to use the nutrient and soil conditioning properties of the sludge for the growing of crops, such as legumes, grasses, grain stubble, and stover, that are intended for animals grazing on the land.

(p) Reclaimed land is land that has been drastically disturbed (e.g., a strip mine) or that is marginally productive. As part of the reclamation process, sewage sludge is applied for its nutrient and soil conditioning properties to help re-vegetate and reclaim the land.

(q) Sewage sludge boundary is the outermost perimeter of an area of land to which sewage sludge is applied.

§ 503.12 Land application—general requirements.

(a) No person subject to this subpart shall use or dispose of sewage sludge by land application or distribute sewage sludge for use or disposal by land application except in accordance with this subpart.

(b) Treatment works shall enter into an agreement with the distributor or applier of sewage sludge that requires the distributor or applier to comply with the requirements in this subpart. Each distributor of sewage sludge shall enter into an agreement with the applier of sewage sludge to comply with the requirements in this subpart. All agreements must include the general provisions in paragraph (b)(1) and the

provisions in paragraph (b)(2) or paragraph (b)(3) of this section.

(1) General provisions include the following:

(i) The name and address of persons receiving and applying the sewage sludge;

(ii) The location and legal description of the sites to which the sludge is to be applied;

(iii) The size of the sites (or portion thereof) to which the sludge is to be applied, in hectares or acres;

(iv) The nitrogen content of the sewage sludge;

(v) A prohibition on applying sewage sludge at rates in excess of the nitrogen requirements of the vegetation (food or feed crops, trees, grasses, etc.) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water;

(vi) The amount of sewage sludge to be applied to each site, in metric tons;

(vii) The class of pathogen reduction used in treating the sewage sludge and the applicable use and access restrictions set forth in 40 CFR 503.52 for that class of pathogen reduction;

(viii) The method used in complying with the vector attraction reduction requirements in 40 CFR 503.53;

(ix) The period of time after receipt within which the sewage sludge must be applied;

(x) The application method to be used (i.e., injection below the soil surface, spraying, surface application, etc.) and whether or not the sludge is to be incorporated into the soil;

(xi) The storage method to be used in case of inclement weather and the public health and environmentally protective practices to be used until the sludge is applied;

(xii) The provisions in § 503.12 (c), (d), and (e).

(2) Provisions for agricultural lands include the following:

(i) The concentrations of the pollutants in Table 1 and Table 2 of 40 CFR 503.13;

(ii) Specification of the amount of sewage sludge, in metric tons per hectare, that may be applied in a 365-consecutive-day period without exceeding the annual pollutant loading rates in Table 1 of 40 CFR 503.13 (see Appendix B of this part to determine the appropriate whole sludge application rate);

(iii) Specification of the number of years that sewage sludge may be applied to the land without exceeding the pollutant loading rates in Table 2 of 40 CFR 503.13 (see Appendix C of this part to determine the number of years that sewage sludge may be applied to the land); and

(iv) The management practices set forth at 40 CFR 503.14.

(3) Provisions for non-agricultural lands include the following:

(i) The concentrations of the pollutants in Table 3 of 40 CFR 503.15;

(ii) The management practices set forth at 40 CFR 503.16.

(c) Sewage sludge shall not be applied to the land if the application would cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or would result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(d) Sewage sludge shall not be applied to the land if the application of the sewage sludge would restrict the flow of a base flood, would reduce the temporary water storage capacity of the floodplain, or would pose a hazard to human health, wildlife, or land or water resources because of sewage sludge in the runoff from the flood base.

(e) Sewage sludge shall not be applied to frozen, snow-covered, or flooded land unless it can be demonstrated that the application will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the CWA.

(f) Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall comply with the monitoring requirements in § 503.81 and the record keeping and report requirements in § 503.82.

§ 503.13 Agricultural land—national pollutant limits.

(a) Sewage sludge shall be applied to agricultural land at an annual whole sludge application rate that does not exceed the annual pollutant loading rates in Table 1. The procedure in Appendix B shall be used to determine the annual whole sludge application rate.

(b) Sewage sludge shall be applied to agricultural land in amounts that do not exceed the cumulative pollutant loading rates in Table 2. The procedure in Appendix C shall be used to determine the number of applications sewage sludge may be applied to the land.

TABLE 1.—ANNUAL POLLUTANT LOADING RATES

Pollutant	Annual pollutant loading rate ¹ (kilograms per hectare)
Aldrin/dieldrin (total)	0.016
Benzo(a)pyrene	0.13
Chlordane	1.2
DDT/DDE/DDD (total) ²	0.0055

TABLE 1.—ANNUAL POLLUTANT LOADING RATES—Continued

Pollutant	Annual pollutant loading rate ¹ (kilograms per hectare)
Dimethyl nitrosamine	0.039
Heptachlor	0.073
Hexachlorobenzene	0.039
Hexachlorobutadiene	0.34
Lindane	4.6
Polychlorinated biphenyls	0.0056
Toxaphene	0.048
Trichloroethylene	0.013

¹ Maximum amount of a pollutant that can be applied per hectare of land per 365-consecutive-day period.

² DDT-2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE-1,1-Bis(chlorophenyl)-2,2-dichloroethane
DDD-1,1-Bis(chlorophenyl)-2,2-dichloroethane

TABLE 2.—CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative pollutant loading rate ¹ (kilograms per hectare)
Arsenic	14
Cadmium	18
Chromium	530
Copper	46
Lead	125
Mercury	15
Molybdenum	5
Nickel	78
Selenium	32
Zinc	170

¹ Maximum amount of an inorganic pollutant that can be applied to a hectare of land.

§ 503.14 Agricultural land—management practices.

The application of sewage sludge to agricultural land must meet the following requirements:

(a) Sewage sludge shall be applied to agricultural land at an annual whole sludge application rate that is 50 metric tons per hectare or less (on a dry weight basis).

(b) Sewage sludge shall only be applied to land in accordance with the crop and land access restrictions of § 503.52(b) (3) and (4) or in § 503.52(c) (3) and (4).

(c) Sewage sludge shall not be applied to the land at rates in excess of the nitrogen requirements of the crops (food or feed crops) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water.

(d) Sewage sludge shall not be applied to land that is 10 meters (30 feet) or less from a surface water.

§ 503.15 Non-agricultural land—national pollutant limits.

The concentration of the pollutants in sewage sludge applied to non-

agricultural land shall not exceed the pollutant limits in Table 3.

TABLE 3.—NON-AGRICULTURAL LAND POLLUTANT LIMITS

Pollutant	Maximum Sewage sludge concentration ¹ (milligrams per kilogram)
Aldrin/dieldrin	0.33
Arsenic	36
Benzo(a)pyrene	6.9
Cadmium	380
Chlordane	24
Chromium	3100
Copper	3300
DDT/DDE/DDD (total) ²	0.11
Dimethyl nitrosamine	1.4
Heptachlor	1.5
Hexachlorobenzene	2.8
Hexachlorobutadiene	6.8
Lead	1600
Lindane	92
Mercury	30
Molybdenum	230
Nickel	990
Polychlorinated biphenyls	0.11
Selenium	64
Toxaphene	0.97
Trichloroethylene	180
Zinc	8600

¹ Dry weight basis.

² DDT—Bis 2,2-(chlorophenyl)-1,1,1-trichloroethane
DDE—Bis 1,1-(chlorophenyl)-2,2-dichloroethane
DDD—Bis 1,1-(chlorophenyl)-2,2-dichloroethane.

§ 503.16 Non-agricultural land—management practices.

The application of sewage sludge to non-agricultural lands must meet the following requirements:

(a) Food crops and feed crops shall not be grown or harvested during the period when sewage sludge is applied to that land or for a period of 5 years after the final application of the sewage sludge;

(b) Animals shall not be grazed during the period when sewage sludge is applied or for a period of five years after the final application of the sewage sludge;

(c) A vegetative cover shall be established on the land;

(d) When sewage sludge meeting the Class A pathogen reduction requirements specified in § 503.52(a) is applied, public access to the land shall be restricted for the period of time necessary to establish a vegetative cover on the land;

(e) Sewage sludge shall not be applied to the land at rates in excess of the nitrogen requirements of the vegetation (trees, grasses, etc.) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water; and

(f) Sewage sludge shall not be applied to land that is 10 meters (30 feet) or less from a surface water.

§ 503.17 Pathogen and vector attraction reduction requirements.

Sewage sludge applied to either agricultural or non-agricultural land shall comply with the requirements in § 503.52 (a), (b), or (c) and the requirements in § 503.53 (a), (b), (c), (d), (e), or (f).

Subpart C—Distribution and Marketing of Sewage Sludge

§ 503.20 Applicability.

This subpart applies to the distribution and marketing of sewage sludge, to any person who distributes and markets sewage sludge, and to any person who uses sewage sludge that is distributed and marketed. Sewage sludge which is applied to either agricultural or non-agricultural land in compliance with Subpart B is not subject to this subpart.

§ 503.21 Specialized definitions.

(a) Annual product application rate is the maximum amount of the product prepared by a distributor that may be applied to a unit area of land in a 365-consecutive-day period in compliance with the pollutant limits in this subpart.

(b) Annual whole sludge application rate is the maximum amount of sewage sludge (or a product derived from sewage sludge prior to disbursement by the treatment works) that may be applied to a unit area of land in a 365-consecutive-day period in compliance with the pollutant limits in this subpart.

(c) Distribution and marketing is the give-away or sale of sewage sludge or a product derived from sewage sludge, either in containers (e.g., bags) or in bulk form, by owners or operators of treatment works or by a person who receives sewage sludge from treatment works.

(d) Distributor is a person who prepares the product for distribution and marketing and who is responsible for distributing and marketing the product.

(e) Product is the material that is distributed and marketed. The product may be either sewage sludge, processed sewage sludge, or a mixture of sewage sludge and other materials such as woodchips.

§ 503.22 Distribution and marketing—general requirements.

(a) No person subject to this part shall distribute and market sewage sludge except in accordance with this subpart.

(b) When the treatment work is not the distributor of the product, the

treatment work shall enter into an agreement with the distributor to comply with the requirements of this subpart. The agreement must include the following:

- (1) Name and address of the distributor;
- (2) Concentrations of the pollutants listed in Table 4 of 40 CFR 503.23 that are in the sewage sludge disbursed to the distributor;
- (3) Appropriate annual whole sludge application rate of the sewage sludge disbursed by the treatment work;
- (4) Appropriate annual product application rate of the product to be distributed and marketed;
- (5) Documentation that the sewage sludge disbursed to the distributor is in compliance with the Class A pathogen

reduction requirements in 40 CFR 503.52(a) and that it has been monitored for compliance with 40 CFR 503.53 (a), (b), (c), (d), or (e).

(6) Facsimile of the label affixed to the product or the information sheet accompanying the product that contains the information required in 40 CFR 503.24(b).

(c) Sewage sludge shall not be applied at rates that would exceed the nitrogen requirements of the vegetation (food crops, grasses, ornamental plants, etc.) and that would cause the excess nitrogen to leach to the ground water.

(d) Owners or operators of treatment works or distributors of sewage sludge shall comply with the monitoring requirements in § 503.81 and the record

keeping and report requirements in § 503.83.

§ 503.23 Distribution and marketing—national pollutant limits.

(a) The concentration of the pollutants in sewage sludge that is distributed and marketed shall not exceed the pollutant limits in Table 4 for the appropriate annual whole sludge application rate prior to being disbursed by the treatment works. The procedure in Appendix B shall be used to determine the annual whole sludge application rate.

(b) The annual product application rate for sewage sludge that is distributed and marketed by distributors shall not exceed the pollutant limits in § 503.23(a).

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TABLE 4
DISTRIBUTION AND MARKETING POLLUTANT LIMITS

Maximum Sewage Sludge Concentration
(milligrams per kilogram - dry weight basis)

Annual Whole Sludge
Application Rate
(metric tons per
hectare)

	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.56	0.47	0.41	0.36	0.33
Arsenic	700	230	140	70	47	35	28	23	20	18	16	14
Benzo(a)pyrene	80	26	15	7.7	5.1	3.8	3.1	2.6	2.2	1.9	1.7	1.5
Cadmium	900	310	180	90	61	46	37	31	26	23	20	18
Chlordane	22500	7500	4500	2200	1500	1100	900	750	640	560	500	450
Chromium	26500	8800	5300	2700	1770	1330	1060	880	760	660	590	530
Copper	2300	770	460	230	150	110	92	77	66	57	51	46
DDT/DDE/DDD (total) ¹	46	15	9.2	4.6	3.1	2.3	1.8	1.5	1.3	1.2	1	0.92
Heptachlor	79	26	19	7.9	5.3	3.9	3.2	2.6	2.3	2	1.8	1.6
Hexachlorobenzene	46	15	9.1	4.6	3	2.3	1.8	1.5	1.3	1.14	1.01	0.91
Hexachlorobutadiene	41000	14000	8200	4100	2700	2100	1600	1400	1200	1000	910	820
Lead	6000	2100	1300	600	400	310	250	210	180	160	140	130
Lindane	293500	97800	58700	29350	19570	14680	11740	9780	8390	7340	6500	5870
Mercury	1990	660	400	199	133	99	80	66	57	50	44	40
Nickel	3900	1300	780	390	260	200	160	130	110	98	87	76
Polychlorinated biphenyls	49	49	30	15	10	7	6	5	4	4	3	3
Selenium	8106	2702.1	1600	810	540	410	320	270	230	200	160	160
Toxaphene	117	39	23	12	7.8	5.8	4.7	3.9	3.3	2.9	2.6	2.3
Zinc	8600	2900	1700	860	570	430	340	290	250	220	190	170

1 DDT - 2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE - 1,1-Bis(chlorophenyl)-2,2-dichloroethylene
DDD - 1,1-Bis(chlorophenyl)-2,2-dichloroethane

§ 503.24 Distribution and marketing—management practices.

(a) When sewage sludge is distributed and marketed, a label shall be affixed to the product or an information sheet shall accompany the product. The label or information sheet shall contain the information required by paragraph (b) of this section.

(b) When sewage sludge is distributed and marketed, the following information shall be provided on a label or information sheet:

- (1) Name and address of the distributor of the product;
- (2) Statement that the product is derived from sewage sludge;
- (3) List of the nitrogen and pollutant concentrations in the product (at a minimum, the list of pollutants is to include the pollutants on Table 4 in § 503.23 that are present in the product);
- (4) Statement prohibiting the use of the product on frozen, snow-covered, or flooded land;
- (5) Statement prohibiting use, except in accordance with the instructions;
- (6) Instructions on the appropriate uses of the product;
- (7) Statement prohibiting the use of the product 10 meters (30 feet) or less from a surface water;
- (8) Rate at which the product may be applied for stipulated uses (rates may not exceed the nitrogen requirements of the vegetation—food crops, grasses, ornamentals, etc.);
- (9) Warning to keep the product out of reach of children;
- (10) Statement prohibiting the grazing of animals intended for human consumption on land where the product is applied;
- (11) Statement prohibiting the use of crops grown on land where the product is applied as feed for animals intended for human consumption; and
- (12) Statement that compliance with the instructions on the label or information sheet will constitute compliance with section 405(e) of the CWA, as amended.

§ 503.25 Pathogen and vector attraction reduction requirements.

Sewage sludge that is distributed and marketed shall be treated to comply with the Class A pathogen reduction requirements in § 503.52(a) and one of the vector attraction reduction requirements in § 503.53 (a) through (e).

Subpart D—Disposal of Sewage Sludge in Monofills**§ 503.30 Applicability.**

This subpart applies to the disposal of sewage sludge in monofills accepting only sewage sludge, to sewage sludge

monofills, and to any person who disposes of sewage sludge in a monofill.

§ 503.31 Specialized definitions.

(a) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(b) Class I ground water is ground water of unusually high value that is highly vulnerable to contamination and is either an irreplaceable source of drinking water to substantial populations or ecologically vital.

(c) Class II ground water is ground water that is not Class I ground water and that is used currently or is available potentially as a source of drinking water and other beneficial uses.

(d) Class III ground water is ground water that:

- (1) Is not a source of drinking water and has a total dissolved solids concentration greater than 10,000 milligrams per liter;
- (2) Is not a source of drinking water and is contaminated by either naturally occurring conditions or the effects of broad scale human activity to levels that cannot be cleaned up using treatment methods reasonably employed in public water supply systems; or
- (3) Is not a source of drinking water because of insufficient yields to meet the minimum needs of an average household.

(e) Closed sewage sludge unit is a sewage sludge unit that no longer receives sewage sludge as of the effective date of this rule and that has received a final cover.

(f) Cover material is soil or other suitable material used to cover sewage sludge in a sewage sludge unit.

(g) Displacement is the relative movement of a fault measured in any direction.

(h) Fault is a fracture along which rocks on one side are displaced with respect to those on the other side.

(i) Final cover is suitable material that permanently covers the sewage sludge unit.

(j) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including floodplain areas of offshore islands that are inundated by a base flood.

(k) Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene to the present.

(l) Lateral expansion is a horizontal expansion of a sewage sludge unit boundary.

(m) Monofill is an area of land that contains one or more sewage sludge units.

(n) Runoff is rainwater, leachate, or other liquid that drains overland on any part of a sewage sludge unit.

(o) Saturated zone is that part of the earth's crust in which all voids of porous materials are filled with water.

(p) Seismic impact zone is an area that has had horizontal ground level acceleration equal to or greater than 0.10 gravities.

(q) Sewage sludge unit is an area of land where only sewage sludge is placed and where the sewage sludge is covered with suitable material at the end of each operating day or at more frequent intervals. Land does not include waters of the United States as defined in 40 CFR 230.3(s).

(r) Sewage sludge unit boundary is the outermost perimeter of the sewage sludge unit.

(s) Unsaturated zone is the zone between the land surface and the water table.

(t) Water table is the upper surface of ground water where the pressure in the porous medium above the ground water equals the atmospheric pressure.

(u) Wetland areas are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas.

§ 503.32 Monofills—general requirements.

(a) No person shall place sewage sludge in a monofill unless the requirements in this subpart are met.

(b) In addition to the requirements of this subpart, owners or operators of monofills shall comply with the National Pollutant Discharge Elimination System (NPDES) requirements promulgated pursuant to section 402 of the CWA.

(c) Owners or operators of a monofill shall determine the class of ground water over which a monofill is located.

(d) Monofills shall not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(e) Monofills and sewage sludge units shall not restrict the flow of a base flood; reduce the temporary water storage capacity of a floodplain; or present a hazard to human health, wildlife, or land or water resources

because of sewage sludge in the run-off from the base flood.

(f) A monofill located within 3,048 meters (10,000 feet) of an airport runway used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft shall not pose a hazard to aircraft from birds.

(g) When a monofill is located in a seismic impact zone, the sewage sludge units shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(h) Sewage sludge units shall be located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time.

(i) Sewage sludge units shall be located in areas where adequate support for the structural components of the sewage sludge unit exists.

(j) Sewage sludge units shall be located outside the perimeter of wetland areas.

(k) Owners or operators of a sewage sludge unit shall collect and discharge the volume of run-off from a 24-hour, 25-year storm event, in accordance with an applicable NPDES permit.

(l) Sewage sludge units located within 60 meters of a fault or stress fractures that have had displacement in Holocene time, located in unstable areas, or located in wetland areas shall be closed within 1 year of the effective date of this rule.

(m) Owners or operators of monofills shall develop a written plan that describes the steps necessary to close each sewage sludge unit and the measures required after each closure to protect public health and the

environment for each sewage sludge unit. The plan shall be submitted to the permitting authority with a permit application. At a minimum, the plan shall include:

(1) A description of the final cover to be used on each sewage sludge unit that closes;

(2) A description of how the final cover will minimize the effects of any volatilization of the pollutants, minimize settling, subsidence, erosion, or other events, and minimize runoff from, or other damage to, the final cover;

(3) A description of how the final cover will be maintained for a period of 10 years;

(4) A description of the methane gas monitoring that will be conducted for a period of 10 years to ensure continued compliance with the requirements in § 503.34(b); and

(5) A description of how public access restrictions to the sewage sludge unit will be maintained for a period of 10 years.

(n) Owners or operators of treatment works shall comply with the monitoring requirements in § 503.81 and the record keeping and report requirements in § 503.84.

§ 503.33 Monofills—pollutant limits.

(a) *National limits.* The concentration of the pollutants in the sewage sludge placed in monofills located over Class I, Class II, and Class III(1) or Class III(3) ground water as defined in § 503.31 (b), (c), and (d)(1) and (d)(3) shall not exceed the pollutant limits in Table 5 or (b)(1) of this section, except as provided in (b)(3) of this section.

(b) *Case-by-case limits.* (1) Where a sewage sludge unit boundary is located

less than 150 meters from the property line of the monofill:

(i) Owners or operators of the monofill shall submit the actual distance of the sewage sludge unit boundary to the property line of the monofill; and

(ii) The permitting authority must calculate numeric limits for the pollutants in Table 5 using an EPA-approved model and the actual distance of the sewage sludge unit to the monofill boundary.

(2) When a monofill is located over Class III(2) ground water as defined in § 503.31(d)(2):

(i) Owners or operators of the monofill must submit the actual concentration for those pollutants that exceed the values in Appendix A; and

(ii) The permitting authority shall calculate the numeric limits using an EPA-approved model and the actual concentration in the ground water of those pollutants that exceeded the values in Appendix A.

(3) When one or more of the pollutant limits in § 503.33(a), § 503.33(b)(1), or § 503.33(b)(2) are exceeded and when the monofill site characteristics are different from the values in Table 6, alternative limits may be developed in accordance with the following procedure:

(i) Owners or operators shall document site-specific values for one or more of the parameters in Table 6; and

(ii) The permitting authority shall calculate numeric limits for all pollutants in Table 5 using an EPA-approved model and the site-specific values provided by the owner or operator.

TABLE 5.—MONOFILL POLLUTANT LIMITS

MAXIMUM SEWAGE SLUDGE CONCENTRATION

[Milligrams per kilogram ¹]

Pollutant	Monofills over class I ground water	Monofills over class II/class III(1) and class III(3) ground water
Arsenic	0.20	24
Benzene	0.28	0.85
Benzo(a)pyrene	99	250
Bis(2-ethylhexyl)phthalate	4.5	1600
Cadmium	0.040	9.6
Chlordane	180	
Copper	8.4	
DDT/DDE/DDD (Total) ²	0.95	51
Dimethyl nitrosamine	0.0019	0.07
Lead	0.35	530
Lindane	2.3	75
Mercury	0.0070	26
Nickel	7.0	
Polychlorinated biphenyls	49	49
Toxaphene	0.5	1.63
Trichloroethylene	2.4	7.4

¹ Dry weight basis.

² DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloroethane

DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethane

DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane.

TABLE 6.—MONOFILL PARAMETERS

Parameter	Value ¹
Depth to ground water.....	0 meters for Class I ground water; 1 meter for Class II and Class III ground water
Soil type.....	Sand
Net ground water recharge rate.....	0.5 meters per year
Ground water electromotive potential (Eh).....	+ 500 millivolts
Ground water pH.....	6.0
Partition coefficient (liters per kilogram):	
Arsenic.....	5.86
Benzene.....	0.0074
Benzo(a)pyrene.....	63.0
Bis(2-ethylhexyl)phthalate.....	0.7244
Cadmium.....	14.9
Chlordane.....	17.0
Copper.....	41.0
DDT/DDE/DDD (Total) ²	500.0
Dimethyl nitrosamine.....	0.000004
Lead.....	234.0
Lindane.....	0.108
Mercury.....	322.0
Nickel.....	12.2
Polychlorinated biphenyls.....	32.0
Toxaphene.....	0.096
Trichloroethylene.....	0.0198

¹ Use value in this Table or measured site-specific value for parameter

² DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethane
DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane

§ 503.34 Monofills—management practices.

(a) The owners or operators of a monofill shall cover sewage sludge units with suitable material at the end of each operating day. Cover material shall be applied at more frequent intervals, if necessary, to control disease vectors, odors, gas venting, and scavenging.

(b) The owners or operators of a monofill shall ensure that:

(1) The concentration of methane gas generated in the sewage sludge units does not exceed 1.25 percent methane in any structure within the monofill;

(2) The concentration of methane gas generated in the sewage sludge units does not exceed 5.0 percent methane at the property line of the monofill;

(3) A routine methane gas monitoring program is implemented in accordance with § 503.84(a); and

(4) All necessary and appropriate actions are taken immediately to protect public safety if the limits specified in paragraph (b) (1) or (2) of the section are detected.

(c) Owners and operators shall restrict public access to monofills to protect human health and the environment and to prevent

unauthorized vehicular traffic or dumping in the monofill.

§ 503.35 Pathogen reduction requirements.

Sewage sludge placed in a monofill shall be treated to comply with either the Class A pathogen reduction requirements in § 503.52(a) or the Class B pathogen reduction requirements in § 503.52(b).

Subpart E—Disposal of Sewage Sludge on Surface Disposal Sites

§ 503.40 Applicability.

This subpart applies to the disposal of sewage sludge on surface disposal sites, to surface disposal sites, and to any person who disposes of sewage sludge on a surface disposal site.

§ 503.41 Specialized definitions.

(a) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(b) Displacement is the relative movement of a fault measured in any direction.

(c) Fault is a fracture along which rocks on one side are displaced with respect to those on the other side.

(d) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including floodplain areas of offshore islands that are inundated by a base flood.

(e) Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene to the present.

(f) Lateral expansion is a horizontal expansion of a surface disposal site.

(g) Runoff is a rainwater, leachate, or other liquid that drains overland on any part of a surface disposal site.

(h) Saturated zone is that part of the earth's crust in which all voids of porous materials are filled with water.

(i) Seismic impact zone is an area that has had horizontal ground level acceleration equal to or greater than 0.10 gravities.

(j) Surface disposal site is an area of land on which only sewage sludge is placed for a period of 1 year or longer. Surface disposal sites do not have a vegetative or other cover. Land on which a surface disposal site is located does not include waters of the United States as defined in 40 CFR 230.3(s).

(k) Unsaturated zone is the zone between the land surface and the water table.

(l) Water table is the upper surface of ground water where the pressure in the porous medium above the ground water equals the atmospheric pressure.

(m) Wetland areas are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas.

§ 503.42 Surface disposal sites—general requirements.

(a) No person subject to this part shall place sewage sludge in a surface disposal site except in accordance with this subpart.

(b) In addition to the requirements of this subpart, owners or operators of surface disposal sites shall comply with the NPDES requirements promulgated pursuant to section 402 of the CWA.

(c) Surface disposal sites shall not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(d) Surface disposal sites shall not restrict the flow of a base flood; reduce the temporary water storage capacity of a floodplain; or present a hazard to human health, wildlife, or land or water resources because of sewage sludge in the runoff from the base flood.

(e) A surface disposal site located within 3,048 meters (10,000 feet) of an airport runway used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft shall not pose a hazard to aircraft from birds.

(f) When a surface disposal site is located in a seismic impact zone, the surface disposal site shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(g) Surface disposal sites shall be located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time.

(h) Surface disposal sites shall be located in areas where adequate support for the structural components of the surface disposal site exists.

(i) Surface disposal sites shall be located outside the perimeter of wetland areas.

(j) Owners or operators of surface disposal sites shall collect and discharge the volume of runoff from a 24-hour, 25-year storm event, in accordance with an applicable NPDES permit.

(k) Sewage sludge surface disposal sites located within 60 meters of a fault or stress fractures that have had displacement in Holocene time, located in unstable areas, or located in wetland areas shall be closed within 1 year of the effective date of this rule.

(l) Owners or operators of treatment works shall comply with the monitoring requirements in § 503.81 and record keeping and report requirements in § 503.85.

§ 503.43 Surface disposal sites—national pollutant limits.

The concentration of the pollutants in sewage sludge placed on a surface disposal site shall not exceed the pollutant limits in Table 7.

TABLE 7.—SURFACE DISPOSAL SITES
POLLUTANT LIMITS

Pollutant	Maximum sewage sludge concentration ¹ (milligrams per kilogram)
Arsenic.....	36
Benzene.....	15
Benzo(a)pyrene.....	99
Bis(2-ethylhexyl)phthalate.....	782
Cadmium.....	385
Chlordane.....	180
Copper.....	3300.3
DDT/DDE/DDD (Total) ²	0.95
Dimethyl nitrosamine.....	1.4
Lead.....	1622
Lindane.....	2.3
Mercury.....	17
Nickel.....	988
Polychlorinated biphenyls.....	49
Toxaphene.....	0.5
Trichloroethylene.....	181

¹ Dry Weight Basis.

² DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloroethane. DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethane. DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane.

§ 503.44 Surface disposal sites—management practices.

(a) The owners and operators of a surface disposal site shall ensure that:

(1) The concentration of methane gas generated in a surface impoundment does not exceed 1.25 percent methane in any structure within the property line of the surface disposal site;

(2) The concentration of methane gas generated in a surface disposal site does not exceed 5.0 percent methane at the property line of the surface disposal site;

(3) A routine methane gas monitoring program is implemented in accordance with § 503.85(a); and

(4) All necessary and appropriate actions are taken immediately to protect public safety if the limits specified in paragraph (a) (1) or (2) of this section are detected.

(b) Food crops and feed crops intended for human or animal consumption shall not be grown on the sewage sludge.

(c) Animals shall not be grazed on the sewage sludge.

(d) Owners and operators shall restrict public access to surface disposal sites to protect human health and the environment and to prevent unauthorized dumping at the site.

§ 503.45 Pathogen and vector attraction reduction requirements.

Sewage sludge placed on a surface disposal site shall be treated to comply with either the Class A pathogen reduction requirement in § 503.52(a) or the Class B pathogen reduction requirements in § 503.52(b) and one of the vector attraction reduction requirements in § 503.53 (a) through (f).

Subpart F—Pathogen and Vector Attraction Reduction Requirements

§ 503.50 Applicability and scope.

(a) *Applicability.* This subpart applies to sewage sludge that is applied to agricultural and non-agricultural land, distributed and marketed, disposed of in a monofill, or disposed of on a surface disposal site.

(b) *Scope.* This subpart establishes the requirements for eliminating or reducing pathogenic organisms in sewage sludge and for eliminating or reducing the characteristics of sludge that attract vectors.

§ 503.51 Specialized definitions.

(a) Aerobic digestion is the oxidation of organic matter in sewage sludge into carbon dioxide by aerobic bacteria.

(b) Anaerobic digestion is the decomposition of organic matter in sewage sludge into methane and carbon dioxide by anaerobic bacteria.

(c) Density of microbial organisms per unit mass of volatile suspended solids is the number of microbial organisms divided by the mass of volatile suspended solids in the sewage sludge.

(d) Feed crops are crops intended for consumption by animals.

(e) Food crops are crops intended for human consumption.

(f) Indicator organisms are fecal coliform and fecal streptococci (enterococci) that are used to indicate

the presence of pathogenic organisms in the processed sewage sludge.

(g) Pathogen reduction is the elimination or reduction of pathogenic bacteria (*Salmonella* sp.), viruses, protozoa, and helminth ova in sewage sludge.

(h) Specific oxygen uptake rate (SOUR) is the rate at which bacteria consume oxygen in a liquid sewage sludge that has undergone aerobic digestion (i.e., mass of oxygen consumed per unit time per unit mass of sewage sludge solids).

(i) Vector attraction reduction is the elimination or reduction of the characteristics of sewage sludge that attract rodents, flies, mosquitos, and other organisms (i.e., organic amines and short-chained fatty acids).

(j) Volatile solids is that portion of the total solids in sewage sludge that evaporates when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

(k) Volatile suspended solids is that portion of the total suspended solids in sewage sludge that evaporates when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

§ 503.52 Pathogen reduction requirements.

(a) *Class A pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b) (3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (a) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraph (a)(3) and, if applicable paragraph (a)(4) of this section.

(1) Pathogenic organisms are equal to or less than:

(i) 3 *Salmonella* sp. per gram of volatile suspended solids;

(ii) 1 plaque forming virus unit per gram of volatile suspended solids;

(iii) 1 protozoan organism per gram of volatile suspended solids; and

(iv) 1 helminth egg per gram of volatile suspended solids.

(2) Sewage sludge is raised to 53 degrees Celsius for 5 days, to 55 degrees Celsius for 3 days, or to 70 degrees Celsius for one-half hour and the densities of indicator organisms are equal to or less than:

(i) 2 log₁₀ fecal coliform per gram of volatile suspended solids; and

(ii) $2 \log_{10}$ fecal streptococci (enterococci) per gram of volatile suspended solids.

(3) Owners or operators of treatment works or distributors shall process the sewage sludge to achieve the limits in paragraph (a) (1) or (2) of this section prior to or concurrent with § 503.53 (a) through (e).

(4) If the method selected for vector attraction reduction is injection below the soil surface as provided in § 503.53(f), treatment works or distributors shall monitor the sewage sludge to ensure that the densities of fecal coliform and fecal streptococci (enterococci) each do not exceed $3 \log_{10}$ per gram of volatile suspended solids prior to injection.

(b) *Class B pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b) (3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (b) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraphs (b) (3) and (4) of this section.

(1) The density of pathogenic organisms in the influent to the treatment work is reduced in the final processed sludge by:

- (i) $2 \log_{10}$ for *Salmonelli* sp. per gram of volatile suspended solids; and
- (ii) $2 \log_{10}$ for viruses per gram of volatile suspended solids.

(2) When the influent to the treatment work or sewage sludge not from a treatment work is processed by a physical or biological method and when the sewage sludge from those methods is treated in a physical, biological, or chemical addition method, or is stored for at least 1 day, the densities of the indicator organisms are equal to or less than:

- (i) $6 \log_{10}$ fecal coliform per gram of volatile suspended solids; and
- (ii) $6 \log_{10}$ fecal streptococci (enterococci) per gram of volatile suspended solids.

(3) When sewage sludge is applied to the land, owners or operators of treatment works or distributors shall ensure that:

(i) Food crops with harvested parts that touch the sludge-soil mixture and that are totally above ground shall not be grown for a period of 18 consecutive months after application of the sewage sludge to the land;

(ii) Food crops with harvested parts that are below the surface of the ground shall not be grown for a period of 5 consecutive years after application of

the sewage sludge, unless no viable helminth ova are present in the soil; if there are no ova present, food crops with harvested parts that are below the surface of the ground may be grown 18 months after application of the sewage sludge;

(iii) Feed crops shall not be harvested for a period of 30 consecutive days after the sewage sludge is applied; and

(iv) Animals shall not be allowed to graze for a period of 30 consecutive days after the sewage sludge is applied.

(4) Owners or operators of treatment works or distributors shall ensure that public access to agricultural and non-agricultural lands is restricted for a period of 12 consecutive months after the application of the sewage sludge.

(c) *Class C pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b) (3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (c) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraphs (c) (3) and (4) of this section.

(1) The density of pathogenic organisms in the influent to the treatment work is reduced in the final processed sludge by:

- (i) $1.5 \log_{10}$ for *Salmonelli* sp. per gram of volatile suspended solids; and
- (ii) $1.5 \log_{10}$ for viruses per gram of volatile suspended solids.

(2) When the influent to the treatment work or sewage sludge not from a treatment work is processed by a physical or biological method and when the sewage sludge from those methods is further processed by a physical or biological method, is stored in a lagoon, is air dried, or is otherwise stored for at least 1 day, the densities of the indicator organisms are equal to or less than:

- (i) $6.3 \log_{10}$ fecal coliform per gram of volatile suspended solids; and
- (ii) $6.7 \log_{10}$ fecal streptococci (enterococci) per gram of volatile suspended solids.

(3) When sewage sludge is applied to the land, owners or operators of treatment works or distributors shall ensure that:

(i) Food crops with harvested parts that touch the sludge-soil mixture and that are totally above the ground shall not be grown for a period of 18 consecutive months after application of the sewage sludge;

(ii) Food crops with harvested parts that are below the surface of the ground shall not be grown for a period of 5 consecutive years after application of

the sewage sludge, unless no viable helminth ova are present in the soil; if there are no ova present, food crops with harvested parts that are below the surface of the ground may be grown 18 months after application of the sewage sludge;

(iii) Feed crops shall not be harvested for a period of 60 consecutive days after the sewage sludge is applied; and

(iv) Animals shall not be allowed to graze for a period of 60 consecutive days after the sewage sludge is applied.

(4) Owners or operators of treatment works or distributors shall ensure that access to agricultural and non-agricultural lands is restricted for a period of 12 consecutive months after the application of the sewage sludge.

§ 503.53 Vector attraction reduction requirements.

Any of the approaches in paragraphs (a) through (f) of this section may be used in meeting the vector attraction reduction requirements when sewage sludge is applied to agricultural and non-agricultural land or disposed of on a surface disposal site. Owners or operators of treatment works that distribute and market their sewage sludge may not use the approach in paragraph (f) of this section.

(a) The mass of volatile solids in sewage sludge that is treated by an aerobic or anaerobic digestion process is reduced by 38 percent.

(b) The mass of volatile solids in sewage sludge that is treated by an anaerobic digestion process is reduced by less than 15 percent when the sewage sludge is processed for 40 additional days at 30 or more degrees Celsius by anaerobic digestion.

(c) For sewage sludge that is processed by aerobic digestion, the specific oxygen uptake rate (SOUR) of the sewage sludge prior to final disposal is 1 milligram of oxygen per hour, per gram or less of sewage sludge solids.

(d) The pH of the sewage sludge is raised to 12 or above by alkali addition and, without the addition of more alkali, remains at 12 or above for 2 consecutive hours and then remains at 11.5 or above for an additional period of 22 hours.

(e) The percent solids of the sewage sludge, based on the moisture and solids content of the sewage sludge prior to mixing with other materials, is 75 percent or greater.

(f) The sewage sludge is injected below the surface of the soil with no evidence of the sewage sludge on the land surface within 1 hour after injection of the sewage sludge.

Subpart G—Incineration of Sewage Sludge

§ 503.60 Applicability.

This subpart applies to the incineration of sewage sludge in an incinerator that only fires sewage sludge, to sewage sludge incinerators, and to any person who disposes of sewage sludge in a sewage sludge incinerator.

§ 503.61 Specialized definitions.

(a) Air pollution control system is one or more processes used to collect emissions from a sewage sludge incinerator.

(b) Control efficiency is the mass of a metallic pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the emission from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

(c) Dispersion factor is a numerical value that correlates the maximum allowable emission rate for a pollutant from a sewage sludge incinerator stack to the maximum allowable increase in the ground level ambient air concentration for that pollutant at a specified distance from the incinerator stack.

(d) Incineration is the firing of sewage sludge in an enclosed device using controlled flame combustion. An enclosed device includes, but is not limited to, multiple hearth incinerators, fluidized bed incinerators, electric incinerators, or rotary kiln incinerators.

(e) Maximum combustion temperature is the maximum temperature in the combustion zone of a sewage sludge incinerator.

(f) Risk specific concentration is the increase in the concentration of a pollutant that sewage sludge incinerators may contribute to the average annual ground level ambient air concentration for that pollutant.

(g) Sewage sludge feed rate is the average amount of sewage sludge incinerated per day for all sewage sludge incinerators within the property line of a facility or the incinerator design capacity for the total amount of sewage sludge that can be incinerated per day for all sewage sludge incinerators within the property line of the facility.

(h) Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground surface at the base, when this difference is equal to or less than 65 meters. For incinerator stacks higher than 65 meters, the creditable stack height above 65 meters is determined in accordance with 40 CFR 51.1(l)(ii).

(i) Total hydrocarbons is the sum of all emitted organic compounds that have one or more carbon-to-carbon bonds, one or more carbon-to-hydrogen bonds, and that also may have one or more carbon-to-chlorine, carbon-to-nitrogen, or carbon-to-oxygen bonds, etc.

§ 503.62 Incineration—general requirements.

(a) No person shall fire sewage sludge in a sewage sludge incinerator unless the sewage sludge and the sewage sludge incinerator meet the requirements in this subpart.

(b) In addition to the requirements in this subpart, owners or operators of sewage sludge incinerators shall comply with the requirements promulgated under the authority of the Clean Air Act in 40 CFR 61.30 through 61.34, 40 CFR 61.50 through 61.55, and 40 CFR 60.150 through 60.154.

(c) Ash from the incineration of sewage sludge shall be disposed of in accordance with the requirements of 40 CFR Parts 257, 258, or 261 through 268, as appropriate.

(d) Sewage sludge feed rates for all sewage sludge incinerators within the property line of treatment works shall be used to calculate the pollutant limits in § 503.63 (b) through (e).

(e) An instrument that continuously measures the sewage sludge feed rate shall be installed, calibrated, operated, and maintained for each sewage sludge incinerator. The instrument shall have an accuracy of plus or minus five percent over its operating range.

(f) Access to the sewage sludge that is fed to an incinerator shall be provided so that representative grab samples of the sewage sludge can be obtained.

(g) An instrument that monitors and continuously records the oxygen content of the combustion chamber gas prior to the point at which any air dilutes the combustion chamber gas shall be installed, calibrated, operated, and maintained. The oxygen measuring instrument shall have an accuracy of plus or minus five percent over its operating range and shall be calibrated at least once every 24-hour operating period.

(h) Instruments that monitor and continuously record temperatures shall be installed, calibrated, operated, and maintained. The number and placement of the instruments shall be as follows:

(1) For a multiple hearth incinerator, one instrument in every hearth and two instruments in the combustion hearth;

(2) For a fluidized bed incinerator, one instrument in the bed and one instrument in the outlet duct of the fluidized bed;

(3) For an electric incinerator, one instrument in the drying zone, one instrument in the cooling zone, and two instruments in the combustion zone; and

(4) For a rotary kiln incinerator, one instrument in the drying zone, one instrument in the cooling zone, and two instruments in the combustion zone.

(i) An instrument that monitors and continuously records the total hydrocarbon concentration, in parts per million, in the sewage sludge incinerator exit gas shall be installed, calibrated, operated, and maintained. The total hydrocarbon measuring device shall employ a flame ionization detector and a heated sampling line maintained at a temperature of 150 degrees Celsius at all times.

(j) Owners or operators of treatment works shall comply with the monitoring requirements in § 503.81 and recordkeeping and report requirements in § 503.86.

§ 503.63 Incineration—pollutant limits.

(a) Sewage sludge may be fired in an incinerator only if the sewage sludge does not exceed the pollutant limit for beryllium in § 503.63(b); the pollutant limit for mercury in § 503.63(c); the pollutant limit for lead in § 503.63(d); the pollutant limits for arsenic, cadmium, chromium, and nickel in § 503.63(e); and the pollutant limit for total hydrocarbons in § 503.63(f).

(b) Beryllium.

The maximum allowable concentration of beryllium in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (b)(1) of this section, except as provided in paragraph (b)(2) of this section.

(1) National limit—beryllium.

The maximum allowable concentration of beryllium shall be calculated using equation (1).

$$C = \frac{10}{(1-CE) \times SF} \quad (1)$$

Where:

C=Maximum allowable beryllium concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

CE=Sewage sludge incinerator control efficiency (from Table 10).

SF=Sewage sludge feed rate, in metric tons per day (dry weight basis).

(2) Case-by-case limit—beryllium.

If the concentration of beryllium in the sewage sludge that is to be incinerated exceeds the concentration in equation (1), owners or operators may perform a test of the incinerator(s) in accordance

with requirements specified by EPA to determine the actual control efficiency of the sewage sludge incinerator(s) in preventing the release of beryllium to the atmosphere. The control efficiency obtained from the performance test shall be used in equation (1) to calculate a maximum allowable concentration of beryllium in sewage sludge which may be fed into the incinerator.

(c) Mercury.

The maximum allowable concentration of mercury in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (c)(1) of this section, except as provided in paragraph (c)(2) of this section.

(1) National limit—mercury.

The maximum allowable concentration of mercury shall be calculated using equation (2).

$$C = \frac{3200}{(1-CE) \times SF} \quad (2)$$

Where:

C=Maximum allowable concentration of mercury in sewage sludge, in milligrams per kilogram (dry weight basis).

CE=Sewage sludge incinerator control efficiency (from Table 10).

SF=Sewage sludge feed rate in metric tons per day (dry weight basis).

If the concentration of mercury in the sewage sludge that is to be incinerated exceeds the concentration in equation (2), owners or operators may perform a test of the incinerator(s) in accordance with requirements specified by EPA to determine the actual control efficiency of the sewage sludge incinerator(s) in preventing the release of mercury to the atmosphere. The control efficiency obtained from the performance test shall be used in equation (2) to calculate a maximum allowable concentration of mercury in the sewage sludge which may be fed into the incinerator.

(d) Lead.

The maximum allowable concentration of lead in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (d)(1) of this section, except as provided in paragraph (d)(2)(i) or (2)(ii) of this section.

(1) National limit—lead.

The maximum allowable concentration of lead incinerated shall be calculated using equation (3).

$$C = \frac{.25 (NAAQS) \times 86,400}{DF \times (1-CE) \times SF} \quad (3)$$

Where:

C=Maximum allowable concentration of lead in sewage sludge, in milligrams per kilogram (dry weight basis).

NAAQS=National Ambient Air Quality Standard for lead (1.5 micrograms per cubic meter maximum arithmetic mean averaged over a calendar quarter).

86,400=Number of seconds in a day.

DF=Dispersion factor, in micrograms per cubic meter, per gram, per second (from Table 9).

CE=Sewage sludge incinerator control efficiency (from Table 10).

SF=Sewage sludge feed rate, in metric tons per day (dry weight basis).

(i) The dispersion factor (DF) in equation (3) shall be obtained from Table 9 if the sewage sludge incinerator stack height is 65 meters or less.

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.1(l)(ii) and shall be used in an EPA-approved air dispersion model to determine the appropriate dispersion factor for equation (3).

(2) Case-by-case limit—lead.

(i) If the concentration of lead in the sewage sludge that is to be incinerated exceeds the concentration in equation (3) because of the dispersion factor in Table 9, owners or operators may determine an alternative dispersion factor using an EPA-approved air dispersion model. The dispersion factor obtained from air dispersion modeling shall be used in equation (3) to calculate a maximum allowable concentration of lead in sewage sludge which may be fed into the incinerator.

(ii) If the concentration of lead in the sewage sludge that is to be incinerated exceeds the concentration in equation (3) because of the control efficiency in Table 10, owners or operators may perform a test of the incinerator(s) in accordance with requirements specified by EPA to determine the actual control efficiency of the incinerator(s) in preventing the release of lead to the atmosphere. The control efficiency obtained from the performance test shall be used in equation (3) to calculate a maximum allowable concentration of lead in the sewage sludge which may be fed into the incinerator.

(e) Arsenic, cadmium, chromium, and nickel.

The maximum allowable concentration of arsenic, cadmium, chromium, or nickel in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (e)(1) of this section, except as provided in paragraph (e)(2)(i) or (ii) of this section.

(1) National limit—arsenic, cadmium, chromium, and nickel.

The maximum allowable concentration of arsenic, cadmium, chromium, or nickel shall be calculated using equation (4).

$$C = \frac{RSC \times 86,400}{DF \times (1-CE) \times SF} \quad (4)$$

Where:

C=Maximum allowable concentration of arsenic, cadmium, chromium, or nickel in sewage sludge, in milligrams per kilogram (dry weight basis).

CE=Sewage sludge incinerator control efficiency (from Table 10).

DF=Dispersion factor, in micrograms per cubic meter, per gram, per second (from Table 9).

RSC=Risk specific concentration, in micrograms per cubic meter (from Table 8).

86,400=Number of seconds in a day.

SF=Sewage sludge feed rate, in metric tons per day (dry weight basis).

(i) The dispersion factor (DF) in equation (4) shall be obtained from Table 9 if the sewage sludge incinerator stack height is 65 meters or less.

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.1(l)(ii) and shall be used in an EPA-approved air dispersion model to determine the appropriate dispersion factor for equation (4).

(2) Case-by-case limit—arsenic, cadmium, chromium, and nickel.

(i) If the concentration of arsenic, cadmium, chromium, or nickel in the sewage sludge that is to be incinerated exceeds the concentration in equation (4) because of the dispersion factor in Table 9, owners or operators may determine an alternative dispersion factor using an EPA-approved air dispersion model. The dispersion factor obtained from air dispersion modeling shall be used in equation (4) to calculate a maximum allowable concentration of arsenic, cadmium, chromium, or nickel in sewage sludge which may be fed into the incinerator.

(ii) If the concentration of arsenic, cadmium, chromium, or nickel in the sewage sludge that is to be incinerated exceeds the concentration in equation (4) because of the control efficiency in Table 10, owners or operators may perform a test of the incinerator(s) in accordance with requirements specified by EPA to determine the actual control efficiency of the sewage sludge incinerator(s) in preventing the release of arsenic, cadmium, chromium, or nickel to the atmosphere. The control efficiency obtained from the

performance test shall be used in equation (4) to calculate a maximum allowable concentration of arsenic, cadmium, chromium, or nickel in the sewage sludge which may be fed into the incinerator.

(f) Total hydrocarbons.

The maximum allowable concentration of total hydrocarbons that may be in the emissions from sewage sludge incinerators shall not exceed the concentration in paragraph (f)(1) of this section, except as provided in paragraph (f)(2) of this section.

(1) National limit—total hydrocarbons.

The maximum allowable concentration of total hydrocarbons shall be calculated using equation (5).

$$\text{THC} = \frac{\text{RSC} \times 3,240,000,000}{\text{DF} \times \text{GF}} \quad (5)$$

Where:

THC=Maximum allowable concentration of total hydrocarbons in the sewage sludge incinerator's emissions, in parts per million, on a volumetric basis, corrected for seven percent oxygen (dry basis).

RSC=Risk specific concentration, in micrograms per cubic meter (from Table 8).

3,240,000,000=Conversion factors.

DF=Dispersion factor, in micrograms per cubic meter, per gram, per second (from Table 9).

GF=Maximum combustion gas flow rate from the sewage sludge incinerator, in gram moles per day.

(i) The dispersion factor (DF) in equation (5) shall be obtained from Table 9 if the sewage sludge incinerator stack height is 65 meters or less.

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.1(l)(ii) and shall be used in an EPA-approved air dispersion model to determine the appropriate dispersion factor for equation (5).

(iii) The maximum combustion gas flow rate (GF) in equation (5) shall be determined using the procedure in Appendix D of this part.

(iv) The concentration of total hydrocarbons measured in the emissions shall be corrected to 50 percent excess air (seven percent oxygen), zero percent moisture as shown in equation (6).

Correction factor dimensionless = $14 (6) (21 - Y)$

Where:

Y=Oxygen concentration in the sewage sludge incinerator exit gas (percent).

(v) The corrected concentration of total hydrocarbons is the total hydrocarbon concentration that must meet the concentration calculated with equation (5), except as provided in paragraph (f)(2) of this section.

(2) Case-by-case limit—total hydrocarbons.

If the concentration of total hydrocarbons from incinerator emissions—measured with the device specified in § 503.62(i) and corrected to 50 percent excess air (seven percent oxygen), as provided in equation (6)—exceeds the limit in equation (5) because of the dispersion factor in Table 9, owners or operators may determine an alternative dispersion factor using an EPA-approved air dispersion model. The dispersion factor obtained from the dispersion modeling shall be used in equation (5) to calculate a maximum allowable concentration of total hydrocarbons in sewage sludge which may be fed into the incinerator.

TABLE 8.—RISK SPECIFIC CONCENTRATION

Pollutant	RSC (Micrograms per cubic meter)
Arsenic.....	0.0023
Cadmium.....	0.0057
Chromium.....	0.085
Nickel.....	0.033
Total Hydrocarbons.....	2.69

TABLE 9.—DISPERSION FACTORS

Stack height (meters)	Dispersion factor (micrograms per cubic meter per gram per second)
5.....	58.24
6.....	57.67
7.....	57.12
8.....	56.58
9.....	56.04
10.....	55.80
11.....	54.96
12.....	50.98
13.....	47.00
14.....	42.41
15.....	37.83
16.....	33.24
17.....	28.65
18.....	25.88
19.....	23.10
20.....	20.33
21.....	17.55
22.....	14.78
23.....	12.00
24.....	11.73
25.....	11.46
26.....	11.19
27.....	10.93
28.....	10.66
29.....	10.39
30.....	10.12

TABLE 9.—DISPERSION FACTORS—Continued

Stack height (meters)	Dispersion factor (micrograms per cubic meter per gram per second)
31.....	9.85
32.....	9.59
33.....	9.32
34.....	9.04
35.....	8.78
36.....	8.51
37.....	8.24
38.....	7.98
39.....	7.71
40.....	7.52
41.....	7.37
42.....	7.23
43.....	7.09
44.....	6.95
45.....	6.81
46.....	6.67
47.....	6.53
48.....	6.39
49.....	6.25
50.....	6.11
51.....	5.97
52.....	5.83
53.....	5.69
54.....	5.54
55.....	5.40
56.....	5.26
57.....	5.12
58.....	4.98
59.....	4.84
60.....	4.70
61.....	4.56
62.....	4.42
63.....	4.28
64.....	4.14
65.....	3.99

TABLE 10.—INCINERATOR CONTROL EFFICIENCIES

Pollutant	Control Efficiencies
Arsenic.....	0.96
Beryllium.....	0.99
Cadmium.....	0.65
Chromium.....	0.96
Lead.....	0.67
Mercury.....	0.00
Nickel.....	0.95

§ 503.64 Incineration—management practices.

(a) Except as provided in paragraph (b) of this section, sewage sludge incinerators must be operated as follows:

(1) The maximum combustion temperature in the sewage sludge incinerator shall be no greater than 898 degrees Celsius (1650 degrees Fahrenheit);

(2) The maximum oxygen content of the exit gas from a sewage sludge incinerator stack shall be 12 percent (dry basis) for a multiple hearth sewage

sludge incinerator, seven percent (dry basis) for a fluidized bed sewage sludge incinerator, nine percent (dry basis) for an electric sewage sludge incinerator, and 12 percent (dry basis) for a rotary kiln sewage sludge incinerator; and

(3) The air pollution control system, including instrumentation, used to collect emissions from the sewage sludge incinerator stack shall be appropriate for the type of incinerator used and shall be operated and maintained to meet all applicable requirements.

(b) When a performance test of an incinerator is used to obtain a control efficiency for the pollutants in § 503.63(b) through (e), the incinerator must be operated as follows:

(1) The maximum combustion temperature and maximum oxygen content of the stack exit gas for the sewage sludge incinerator shall be based on the results of the performance test; and

(2) The air pollution control system used to collect emissions from the sewage sludge incinerator stack, including instrumentation, shall be appropriate for the type of incinerator

used and shall be operated and maintained to meet all applicable requirements.

Subpart H—Removal Credits

§ 503.70 Applicability and description of a removal credit.

(a) *Applicability.* This subpart applies to those pollutants in sewage sludge for which pollutant limits are established in this part, to additional pollutants that do not pose an unreasonable risk to human health or the environment when sewage sludge is used or disposed of by a particular method, and to pollutants in sewage sludge that is disposed of in accordance with 40 CFR Part 258.

(b) *Description of a removal credit.* Regulations at 40 CFR Part 403 provide that, subject to the conditions of Part 403, any POTW receiving wastes from an industrial user to which a categorical pretreatment standard applies, at its discretion, upon authorization from the approval authority, may grant credits to industrial users that reflect removal by the POTW of pollutants specified in the categorical pretreatment standards.

§ 503.71 Specialized definition.

Categorical pretreatment standard is a numerical effluent limit promulgated by EPA for a pollutant discharged into a POTW with which all processes in an industrial category must comply.

§ 503.72 Pollutants for which removal credits may be authorized.

Subject to the conditions of 40 CFR Part 403, the owners or operators of a POTW may grant removal credits under any of the following conditions:

(a) For any pollutant listed on Table 11 that is regulated in the use or disposal method employed by the POTW, if the POTW complies with the requirements of this part;

(b) For any pollutant listed on Table 12 in the use or disposal method employed by the POTW if the POTW's sewage sludge does not exceed the levels shown on Table 13 and if the POTW complies with the requirements of this part; or

(c) For any pollutant present in the sewage sludge of the POTW, if the owner or operator disposes of the sludge in accordance with 40 CFR Part 258.

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TABLE 11
REGULATED POLLUTANTS ELIGIBLE FOR REMOVAL CREDITS

Pollutants	LA	D&M	MF	SD	I
Acrylonitrile					X
Aldrin	X	X			X
Arsenic	X	X			X
Benzene			X		X
Benzidine			X		X
Benzo(a)pyrene	X				X
Beryllium					X
Bis(2-chloroethyl)ether					X
Bis(2-ethylhexyl)phthalate					X
Bromodichloromethane					X
Bromoethane					X
Cadmium	X				X
Carbon tetrachloride					X
Chlordane	X				X
Chloroform					X
Chromium	X				X
Copper	X				X
DDD, DDE, DDT	X				X
Dibromochloromethane					X
Dibutyl phthalate					X
2,4-dichlorophenol					X
1,3-dichloropropene					X
Diethyl phthalate					X
2,4-dinitrophenol					X
1,2-diphenylhydrazine					X
Dieldrin	X				X
Dimethyl nitrosamine	X				X
Endosulfan					X
Endrin					X
Ethylbenzene					X
Heptachlor	X				X
Heptachlor epoxide					X
Hexachlorobenzene	X				X
Hexachlorobutadiene	X				X
alpha-hexachlorocyclohexane	X				X
beta-hexachlorocyclohexane					X
Hexachlorocyclopentadiene					X
Hexachloroethane					X
Hydrogen cyanide					X
Isophorone					X
Lead	X				X
Lindane	X				X

(continued)	LA	D&M	MF	SD	I
Mercury	X	X	X	X	X
Molybdenum	X				X
Nitrobenzene					X
N-Nitrosodimethylamine					X
N-Nitrosodi-n-propylamine					X
Nickel	X	X	X	X	X
Pentachlorophenol					X
Phenol					X
Polychlorinated biphenyls	X	X	X		X
Selenium	X	X			X
2,3,7,8-tetrachlorodibenzo-p-dioxin					X
1,1,2,2-tetrachloroethane					X
Tetrachloroethylene					X
Toluene					X
Toxaphene	X	X	X	X	X
Trichloroethylene	X	X	X	X	X
1,2,4-trichlorobenzene					X
1,1,1-trichloroethane					X
1,1,2-trichloroethane					X
2,4,6-trichlorophenol					X
Zinc	X	X	X	X	X

KEY: LA refers to land application

D&M refers to distribution and marketing

MF refers to sludge-only landfills

SD refers to surface disposal unit

I refers to incineration

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TABLE 12.—ADDITIONAL POLLUTANTS ELIGIBLE FOR REMOVAL CREDITS

	mg/kg
Land Application of Sewage Sludge:	
Cyanide	2,686.6
Fluoride	738.7
Iron	78,700
Pentachlorophenol	30.43
Distribution and Marketing of Sewage Sludge:	
Cyanide	2,686.6
Dimethyl nitrosamine	2.55
Fluoride	738.7
Iron	78,700
Pentachlorophenol	30.43
Trichloroethylene	13.07
Disposal of Sewage Sludge in Monofills:	
Chlordane	12
Chromium	1,499.7
Copper ¹	1,427
Cyanide	2,686.6
2,4 Dichlorophenoxyacetic acid	7.16
Malathion	0.63
Molybdenum	40
Nickel	1,662.7
Phenol	82.06
Selenium	4.85
Zinc	4,580
Disposal of Sewage Sludge on Surface Disposal Sites:	
Chromium	1,499.7
Cyanide	2,686.6
2,4 Dichlorophenoxyacetic acid	7.16
Malathion	0.63
Molybdenum	40
Phenol	82.06
Selenium	4.85
Zinc	4,580
Incineration of Sewage Sludge:	
Copper	1,427
Selenium	4.85
Zinc	4,580

¹ A removal credit may be granted for this pollutant when the monofill is located over ground water classified as Class II, Class III(1), and Class III(3), as defined in § 503.31 (c) and (d).

Subpart I—Monitoring, Record Keeping, and Reports

§ 503.80 Purpose.

This subpart contains the minimum frequencies that owners or operators of treatment works must monitor their sewage sludge; the minimum records that owners or operators of treatment works must keep; the period of time the records must be kept; and the minimum information that owners or operators of treatment works must report to the permitting authority. Nothing in this subpart prevents the establishment of more stringent monitoring, record keeping, and report requirements for any practice covered by this part.

§ 503.81 General.

Owners or operators of treatment works or distributors of sewage sludge shall collect sewage sludge samples and

analyze these samples in accordance with the procedures, methods, and frequency specified in paragraphs (a), (b), and (c) of this section. The pollutants and pathogenic organisms or indicator organisms for which owners or operators of treatment works shall analyze their sewage sludge depend on the use or disposal method employed by the treatment work or distributor and are specified in § 503.93 through § 503.97 of this part.

(a) Sampling protocol.
"Sampling Procedures and Protocols for the National Sewage Sludge Survey," Office of Water Regulations and Standards (March 1988).

(b) Analytical methods.
(1) Organic pollutants.
Methods 1624 and 1625 in "Analytical Methods for the National Sewage Sludge Survey," Office of Water Sample Control Center (March 1988) or Methods 624 and 625 in 40 CFR Part 136.

(2) Inorganic pollutants.
"Analytical Methods for the National Sewage Sludge Survey," Office of Water Sample Control Center (March 1988).

(3) Pathogenic bacteria, *Salmonella* sp.

(i) Part 912 C.1, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985); or
(ii) Kenner, B.A. and H.A. Clark, "Detection and enumeration of *Salmonella* and *Pseudomonas aeruginosa*," "J. Water Pollution Control Federation," 46(9):2163-2171.

(4) Viruses.
"The Manual of Methods for Virology," EPA/600/4-84/013 (February 1984), as revised.

(5) Protozoa.

(i) Part 917, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985); or

(ii) Fox, J.C., P.R. Fitzgerald, and C. Lue-Hing, "Sewage Organisms: A Color Atlas," Lewis Publishers, Chelsea, Michigan (1981).

(6) Helminth ova.

(i) Part 917, "Standard Methods for the Examination of Water and Wastewater," 16th edition (1985); or
(ii) Fox, J.C., P.R. Fitzgerald, and C. Lue-Hing, "Sewage Organisms: A Color Atlas," Lewis Publishers, Chelsea, Michigan (1981).

(7) Fecal coliform.
Part 908 or Part 909, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).
(8) Fecal streptococci/enterococci.
(i) Part 910 A, "Standard Methods for

the Examination of Water and Wastewater," 16th Edition (1985); or
(ii) Slantely, L.W. and C.H. Bartley, "Numbers of enterococci in water, sewage, and feces determined by the membrane filter technique with an improved medium," "J. Bacteriology," 74:591-595 (1957).

(9) Volatile solids.
Part 209 C, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(10) Volatile suspended solids.
Part 209 C, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(11) Percent volatile solids reduction.
The percent volatile solids reduction shall be calculated using the following equation:

$$\text{Percent Volatile Solids Reduction} = \frac{(M_i - M_g) \times 100}{M_i}$$

Where:

M_i = The mass of volatile solids in sewage sludge prior to processing.

M_g = The mass of volatile solids in sewage sludge after processing.

(12) Specific oxygen uptake rate (SOUR).

Part 213 A, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(c) Frequency of monitoring and reporting.

Unless otherwise specified, owners or operators of treatment works shall monitor and report the parameters specified in this subpart in accordance with the following:

Treatment works design capacity (million gallons per day)	Frequency of monitoring
Less than 1.0	Once per year.
1.0 to 10.0	Once per quarter.
Greater than 10.0	Once per month.

§ 503.82 Land application of sewage sludge.

(a) Monitoring—(1) Agricultural land.

From a representative sample of sewage sludge, owners or operators of treatment works or distributors of sewage sludge, in accordance with the applicable frequency specified in § 503.81(c), shall:

(i) Determine the concentrations of nitrogen and the pollutants listed on Tables 1 and 2 in § 503.13. Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(ii) Determine compliance with Class A, Class B, or Class C pathogen-reduction requirements in § 503.52.

(iii) Determine compliance with the vector attraction reduction requirements in § 503.53.

(iv) When owners or operators of treatment works inject the sewage sludge below the surface of agricultural land to comply with the vector attraction reduction requirements in § 503.53(f), the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(2) *Non-agricultural land.* From a representative sample of sewage sludge, owners or operators of treatment works or distributors of sewage sludge, in accordance with the applicable frequency specified in § 503.81(c), shall:

(i) Determine the concentrations of nitrogen and the pollutants listed on Table 3 in § 503.15. Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(ii) Determine compliance with Class A, Class B, or Class C pathogen reduction requirements in § 503.52.

(iii) Determine compliance with the vector attraction reduction requirements in § 503.53.

(iv) When owners or operators of treatment works inject the sewage sludge below the surface of non-agricultural land to comply with the vector attraction reduction requirements in § 503.53(f), the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(b) *Record keeping.*—(1) *Agricultural land.* Owners or operators of treatment works or distributors of sewage sludge shall retain for the life of the treatment works the following:

(i) The name and address of the applier of the sewage sludge;

(ii) The location and legal description of the field, including the area of each field where the sewage sludge is applied;

(iii) The concentrations of nitrogen and the pollutants listed on Tables 1 and 2 in § 503.13;

(iv) The amount of sewage sludge applied to each site;

(v) The amount of each organic pollutant listed on Table 1 in § 503.13 applied to each site;

(vi) The amount of each inorganic pollutant listed on Table 2 in § 503.13 applied to each site;

(vii) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52;

(viii) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements in § 503.53;

(ix) A record that indicates whether sewage sludge was injected below the soil surface to comply with the vector attraction reduction requirement in § 503.53(f);

(x) The contracts between the treatment work and the distributors and appliers of the sewage sludge;

(xi) Certification that the applier was informed about the access and use restrictions;

(xii) Certification that the land application does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of the base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present harm to human health, wildlife, or land or water resources; and

(xiii) Certification, for each application site, that the distance between the sewage sludge boundary and any surface water is at least 10 meters.

(2) *Non-agricultural land.* Owners or operators of treatment works or distributors of sewage sludge shall keep, for 5 years, the following:

(i) The name and address of the applier of the sewage sludge;

(ii) The concentrations of nitrogen and the pollutants listed on Table 3 in § 503.15;

(iii) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52;

(iv) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements in § 503.53;

(v) A record that indicates whether sewage sludge was injected below the soil surface to comply with the vector attraction reduction requirement in § 503.53(f);

(vi) The contracts between the treatment works and the distributors and appliers of the sewage sludge;

(vii) Certification that the applier was informed about the access and use restrictions;

(viii) Certification that the land application does cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of the base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present harm to human health, wildlife, or land or water resources; and

(ix) Certification, for each application site, that the distance between the sewage sludge boundary and any surface water is at least 10 meters.

(c) *Reports.*—(1) *Agricultural land.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or distributors of sewage sludge shall provide the permitting authority with:

(i) The information required by § 503.82(b)(1).

(ii) After the initial submission, the owners or operators of a treatment work or distributors of sewage sludge shall re-submit the information in § 503.82(b)(1) (x) through (xiii) only when there are changes.

(2) *Non-agricultural land.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or distributors of sewage sludge shall provide the permitting authority with:

(i) The information required by § 503.82(b)(2).

(ii) After the initial submission, the owners or operators of a treatment work or distributors of sewage sludge shall re-submit the information in § 503.82(b)(2) (vi) through (ix) only when there are changes.

§ 503.83 Distribution and marketing of sewage sludge.

(a) *Monitoring.* (1) Owners or operators of treatment works shall determine the concentrations of nitrogen and the pollutants listed on Table 4 in § 503.23 from a representative sample of sewage sludge prior to its disbursement or in accordance with the applicable frequency specified in § 503.81(c), whichever is the more frequent period of time. Also, owners or operators shall determine the concentrations of the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) When a treatment work is not the distributor, the distributor of the product shall determine the concentrations of nitrogen and the pollutants on Table 4 in

§ 503.23 from a representative sample of the product prior to its disbursement.

(3) Owners or operators of treatment works shall determine compliance with the Class A pathogen reduction requirements in § 503.52(a) from a representative sample of the sewage sludge that is disbursed.

(4) Owners or operators of treatment works shall determine compliance with the vector attraction reduction requirement selected in § 503.53 (a) through (e) from a representative sample of the sewage sludge that is disbursed.

(b) *Record keeping.* Owners or operators of treatment works shall keep, for 5 years, the following:

(1) The name and address of the distributor of the sewage sludge;

(2) The concentrations of nitrogen and the pollutants that are listed on Table 4 in § 503.23 prior to disbursement by the treatment work;

(3) The concentrations of nitrogen and the pollutants in the product that are listed on Table 4 in § 503.23;

(4) The appropriate annual whole sludge application rate prior to disbursement by the treatment work;

(5) The annual product application rate;

(6) The contracts between the distributor of the product and the treatment work, when applicable;

(7) The results of monitoring the sewage sludge prior to disbursement by the treatment work to determine compliance with the pathogen reduction requirements;

(8) The results of monitoring the sewage sludge prior to disbursement by the treatment work to determine compliance with the vector attraction reduction requirements; and

(9) A copy of the label affixed to the product or the informational sheet accompanying the product.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works shall provide the permitting authority with:

(1) The information required by § 503.83(b).

(2) After the initial submission, the owners or operators of a treatment work shall re-submit the information in § 503.83(b) only if there are changes.

§ 503.84 Disposal of sewage sludge in monofills.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works shall determine the concentrations of the pollutants listed on Table 5 in § 503.33 in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators

shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with either Class A or Class B pathogen reduction requirements in § 503.52(a) or (b) in accordance with the applicable frequency specified in § 503.81(c).

(3) Owners or operators of monofills shall continuously monitor the air for methane gas in any structure within a monofill and at the property line of the monofill.

(4) Owners or operators of monofills shall monitor the run-off from the monofill that is collected to determine the volume of the run-off discharged and the concentration of pollutants in the discharge.

(b) *Record keeping.* Owners or operators of treatment works or of the monofill, as appropriate, shall keep, for 10 years, the following:

(1) The concentrations of the pollutants listed on Table 5 in § 503.33;

(2) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52 (a) or (b);

(3) A record of the methane gas concentration in any structure within the monofill and at the property line of the monofill;

(4) The volume of run-off collected and discharged and the concentration of the pollutants in the discharge;

(5) Certification that the monofill does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of a base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present a hazard to human health, wildlife, or land or water resources;

(6) Certification that the monofill is not a hazard to aircraft from birds if the monofill is located within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft;

(7) Certification that the monofill is designed to withstand stress created by the maximum horizontal ground level acceleration if the monofill is located in a seismic zone;

(8) Certification that each sewage sludge unit is located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time;

(9) Certification that each sewage sludge unit is located in an area that has adequate support for the structural components of the unit; and

(10) Certification that each sewage sludge unit is located outside wetland areas.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the monofills, as appropriate, shall provide the permitting authority with:

(1) The information required in § 503.84(b).

(2) After the initial submission, the owners or operators of a treatment work or monofill, as appropriate, shall re-submit the information in § 503.84(b) (5) through (10) only when there are changes.

§ 503.85 Disposal of sewage sludge on surface disposal sites.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works shall determine the concentrations of the pollutants listed on Table 7 in § 503.43 in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators shall monitor for the pollutants listed on table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with either Class A or Class B pathogen reduction requirements in § 503.52 (a) or (b) in accordance with the applicable frequency specified in § 503.81(c).

(3) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with the vector attraction reduction requirements in § 503.53 in accordance with the applicable frequency specified in § 503.81(c).

(4) When owners or operators of treatment works inject the sewage sludge below the soil surface to reduce the vector attraction, the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(5) Owners or operators of surface disposal sites shall continuously monitor the air for methane gas in any structure on the disposal site and at the property line of the site.

(6) Owners or operators of surface disposal sites shall monitor the runoff from the surface disposal site that is collected to determine the volume of the runoff discharged and the concentration of pollutants in the discharge.

(b) *Record keeping.* Owners or operators of treatment works or of the surface disposal sites, as appropriate, shall keep, for 5 years, the following:

(1) The concentrations of the pollutants listed on Table 7 in § 503.43;

(2) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52 (a) or (b).

(3) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements of § 503.53;

(4) A record of the methane gas concentration in any structure within the surface disposal site and at the property line of the surface disposal site;

(5) The volume of run-off collected and discharged and the concentration of the pollutants in the discharge;

(6) Certification that the surface disposal site does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of a base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present a hazard to human health, wildlife, or land or water resources;

(7) Certification that the surface disposal site is not a hazard to aircraft from birds if the surface disposal site is located within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft;

(8) Certification that the surface disposal site is designed to withstand stress created by the maximum ground level acceleration if the surface disposal site is located in a seismic zone;

(9) Certification that each surface disposal site is located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time;

(10) Certification that each surface disposal site is located in an area that has adequate support for the structural components of the site; and

(11) Certification that each new surface disposal site is located outside wetland areas.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the surface disposal site, as appropriate, shall provide the permitting authority with:

(1) The information required in § 503.85(b).

(2) After the initial submission, owners or operators of a treatment work or surface disposal site, as appropriate,

shall re-submit the information in § 503.85(b) (6) through (11) only when there are changes.

§ 503.86 Incineration of sewage sludge.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works that incinerate their sewage sludge shall determine the concentrations of arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) Owners or operators of sewage sludge incinerators shall continuously monitor:

(i) The total hydrocarbon

concentration in the incinerator stack;

(ii) The rate at which sewage sludge is fed to an incinerator;

(iii) The combustion temperature in the incinerator;

(iv) The oxygen content of the exit gas; and

(v) The pressure drop across the air pollution control system, if applicable.

(b) *Record keeping.* Owners or operators of treatment works or of the sewage sludge incinerator, as appropriate, shall keep, for 5 years, the following:

(1) The concentrations of arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel in the sewage sludge;

(2) A record of the parameters in § 503.86(a)(2) that are continuously monitored;

(3) Calibration and maintenance records and original instrument chart recordings for continuous-monitoring instruments;

(4) Results of any site-specific air modeling; and

(5) Results of any incinerator performance tests.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the incinerator, as appropriate, shall provide the permitting authority with the following:

(1) The information required in § 503.86(b);

(2) The periods when the combustion temperature in the incinerator was above the maximum allowable temperature, as specified in § 503.64 (a)(1) or (b)(1), for 15 minutes or longer;

(3) The periods when the oxygen content of the exit gas from the incinerator stack was above the maximum allowable, as specified in § 503.64 (a)(2) or (b)(1), for 15 minutes or longer;

(4) The periods when the pressure drop across the air pollution control device remained outside the range of allowable drop, as specified in § 503.64 (a)(3) or (b)(2), if applicable, for longer than 1 hour;

(5) The recordings for the concentration of total hydrocarbons in the incinerator stack, required in § 503.86(a) (i); and

(6) The recordings for the sewage sludge feed rate, required in § 503.86(a)(2)(ii).

APPENDIX A.—GROUND WATER POLLUTANT CRITERIA

Pollutant	Concentration (micrograms per liter) ¹
Arsenic.....	50.0
Benzene.....	5.0
Benzo(a)pyrene.....	0.3
Bis(2-ethylhexyl)phthalate.....	248.0
Cadmium.....	10.0
Chlordane.....	2.1
Copper.....	1300.0
DDT/DDE/DDD (total) ²	10.2
Dimethylnitrosamine.....	0.1
Lead.....	50.0
Lindane.....	4.0
Mercury.....	2.0
Nickel.....	1750.0
Polychlorinated biphenyls.....	0.45
Toxaphene.....	5.0
Trichloroethylene.....	5.0

¹ Pollutant concentration values referenced in 503.33(a).

² DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloromethane

DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethene

DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane

APPENDIX B—Procedure To Determine Annual Whole Sludge Application Rate

Land Application

Section 503.13(b) requires that sewage sludge be applied to agricultural land at an annual whole sludge application rate (AWSAR) that does not exceed the annual pollutant loading rates (APLR) in Table 1. This appendix contains a procedure to be used in determining the AWSAR that will not cause the APLRs to be exceeded.

The relationship between APLR and AWSAR is shown in equation (1).

$$APLR = C \times 0.001 \times AWSAR \quad (1)$$

Where:

APLR = Annual pollutant loading rate, in kilograms per hectare, per 365-consecutive-day period.

C = Pollutant concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

AWSAR = Annual whole sludge application rate, in metric tons per hectare, per 365-consecutive-day period (dry weight basis).

To determine the pollutant concentration in the sewage sludge, equation (1) is rearranged into equation (2):

$$C = \frac{\text{APLR}}{.001 \times \text{AWSAR}} \quad (2)$$

The APLR rates are given in Table 1 in § 503.13. The APLR remains constant for all AWSAR and all sludge pollutant concentrations. When the pollutant concentrations vary, AWSARs vary. As the AWSAR increases, the pollutant concentration decreases and vice versa.

Table B-1 contains the pollutant concentrations based on the APLRs in Table 1 for various AWSARs. Table B-1 is used to

illustrate the procedure to determine the appropriate AWSAR for a sewage sludge.

Procedure:

1. Locate the sludge pollutant concentrations in Table B-1. The circled values in Table B-1 represent the actual pollutant concentrations for this example. When an actual pollutant concentration is between the values in Table B-1, circle the concentration for the lower AWSAR. For example, if the actual concentration for lindane is 125 mg/kg, circle the value for the 35 MT/ha AWSAR (i.e., 130).
2. Determine the limiting AWSAR for the sewage sludge. The limiting AWSAR is the

lowest AWSAR considering all of the circled concentration values. In this example, the limiting AWSAR is 10 MT/ha/365-consecutive-day period.

3. Sewage sludge with the actual pollutant concentrations used in this example (i.e., the circled values in Table B-1) can be applied to agricultural land at an annual whole sludge application rate of 10 MT/ha or less. If the sewage sludge is applied to agricultural land at an annual whole sludge application rate greater than 10 MT/ha, the annual pollutant loading rate for hexachlorobutadiene would be exceeded.

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TABLE 8-1

Annual Whole Sludge Application Rate (metric tons per hectare)	Maximum Sewage Sludge Concentration (mg/kg - dry weight basis)											
	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.55	0.47	0.41	0.36	0.33
Benzo(a)pyrene	130	45	27	13	8.9	6.7	5.4	4.5	3.8	3.4	3	3
Chlordane	1200	400	240	120	80	60	48	40	34	30	27	24
DDT/DDE/DDD (total)*	5.5	1.8	1.1	0.55	0.36	0.27	0.22	0.18	0.16	0.14	0.12	0.11
Dimethyl nitrosamine	39	13	7.8	3.9	2.6	1.9	1.6	1.3	1.1	0.97	0.87	0.78
Heptachlor	73	24	15	7.3	4.9	3.7	2.9	2.4	2.1	1.8	1.6	1.5
Hexachlorobenzene	39	13	7.8	3.9	2.6	1.9	1.6	1.3	1.1	0.97	0.87	0.78
Hexachlorobutadiene	340	110	68	34	23	17	14	11	9.7	8.5	7.5	6.8
Lindane	4600	1500	920	460	310	230	180	150	130	120	102	92
Polychlorinated biphenyls	5.64	1.88	1.13	0.56	0.38	0.28	0.23	0.19	0.16	0.14	0.13	0.11
Toxaphene	48	16	9.7	4.8	3.2	2.4	1.9	1.6	1.4	1.2	1.08	0.97
Trichloroethylene	13	4.2	2.5	1.3	0.85	0.64	0.51	0.42	0.36	0.32	0.28	0.25

* DDT - 2,2-Bis(chlorophenyl)-1,1,1-trichloroethane

DDE - 1,1-Bis(chlorophenyl)-2,2-dichloroethylene

DDD - 1,1-Bis(chlorophenyl)-2,2-dichloroethane

Distribution and Marketing

Section 503.23 requires sewage sludge that is distributed and marketed to meet the pollutant limits in Table 4 for an applicable AWSAR. This appendix contains a procedure that can be used to determine the applicable AWSAR for distribution and marketing.

Equations (1) and (2) in the land application section of this appendix show the relationship between annual pollutant loading rate, annual whole sludge application rate, and pollutant concentration in sewage sludge. Equation (2) is used to calculate the pollutant concentrations in Table B-2 for various AWSARs. The procedure to determine the appropriate AWSAR for a sewage sludge that is distributed and marketed is presented below.

Procedure:

1. Determine the actual concentration of the pollutants listed in Table B-2 in the sewage sludge. The circled values in Table B-2 represent the actual pollutant concentrations for this example. When an actual pollutant concentration is between the values in Table B-2, circle the concentration for the lower AWSAR (see Step 1 of the procedure in this appendix for land application).
2. Determine the applicable AWSAR for the sewage sludge. The applicable AWSAR is the lowest AWSAR considering all of the circled concentration values. In this example, the applicable AWSAR is 15 MT/ha/365-consecutive-day period.
3. The pollutant limits that the sewage sludge has to meet prior to disbursement by

the treatment works are those for an AWSAR of 15 MT/ha. If a higher AWSAR is used, the annual pollutant loading rate for lindane would be exceeded.

4. The label or information sheet accompanying the product, required by § 503.24(a), would indicate that the annual product application rate should not exceed 15 MT/ha (i.e., 307 pounds per 1000 square feet per year) if the product is sewage sludge only. If the product is a mixture of sewage sludge and other material such as wood chips, the annual product application rate for the mixture may be higher than 15 MT/ha/365-consecutive-day period, depending on the actual pollutant concentrations in the mixture.

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Table B-2

Maximum Sewage Sludge Concentration
(mg/kg - dry weight basis)Annual Whole Sludge
Application Rate
(metric tons per
hectare)

	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.55	0.47	0.41	0.36	0.33
Arsenic	700	230	140	70	47	35	28	23	20	18	16	14
Benzo(a)pyrene	80	26	15	7.7	5.1	3.8	3.1	2.6	2.2	1.9	1.7	1.5
Cadmium	900	310	180	90	61	46	37	31	26	23	20	18
Chlordane	22500	7500	4500	2200	1500	1100	900	750	640	560	500	450
Chromium	26500	8800	5300	2700	1770	1330	1060	880	760	660	590	530
Copper	2300	770	460	230	150	110	92	77	66	58	51	46
DDT/DDE/DDD (total)	46	15	9.2	4.6	3.1	2.3	1.8	1.5	1.3	1.2	1	0.92
Heptachlor	79	26	16	7.9	5.3	3.9	3.2	2.6	2.3	2	1.8	1.6
Hexachlorobenzene	46	15	9.1	4.6	3	2.3	1.8	1.5	1.3	1.14	1.01	0.91
Hexachlorobutadiene	41000	14000	8200	4100	2700	2100	1600	1400	1200	1000	910	820
Lead	6000	2100	1300	600	400	310	250	210	180	160	140	130
Lindane	293500	97800	58700	29350	19570	14680	11740	9780	8390	7340	6500	5870
Mercury	1990	660	400	199	133	99	80	66	57	50	44	40
Nickel	3900	1300	780	390	260	200	160	130	110	98	87	78
Polychlorinated biphenyls	49	49	30	15	10	7	6	5	4	4	3	3
Selenium	8106	2702.1	1600	810	540	410	320	270	230	200	160	160
Toxaphene	117	39	23	12	7.8	5.8	4.7	3.9	3.3	2.9	2.6	2.3
Zinc	8600	2900	1700	860	570	430	340	290	250	220	190	170

* DDT - 1,1-(4-Chlorophenyl)-2,2,2-trichloroethane
 DDE - 1,1-(4-Chlorophenyl)-2,2-dichloroethylene
 DDD - 1,1-(4-Chlorophenyl)-2,2-dichloroethane

APPENDIX C—Procedure To Determine the Number of Applications (Years) That Sewage Sludge May Be Applied to Agricultural Land

Section 503.13(c) requires that sewage sludge not be applied to agricultural land in amounts that do not exceed the cumulative pollutant loading rates in Table 2. This appendix contains a procedure to be used in determining the number of sewage sludge applications that can be made without exceeding those rates. The number of applications is dependent on the pollutant concentrations in the sewage sludge and the annual whole sludge application rate (AWSAR).

Procedure:

1. Determine the concentration of arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc in the sewage sludge. For the purpose of this example, assume the following pollutant concentrations (dry weight basis):

arsenic = 37 mg/kg
cadmium = 30 mg/kg
chromium = 2500 mg/kg
copper = 1000 mg/kg
lead = 1000 mg/kg
mercury = 17 mg/kg
molybdenum = 75 mg/kg
nickel = 400 mg/kg
selenium = 14 mg/kg
zinc = 4000 mg/kg

2. Determine the AWSAR for the sewage sludge. The AWSAR is the AWSAR from the land application procedure in Appendix B that does not cause the annual pollutant loading rates in Table 1 to be exceeded. For this example, the AWSAR is 10 MT/ha/365-consecutive-day period.

3. Calculate an annual pollutant loading rate (APLR), for each inorganic pollutant using equation (1).

$$APLR = C \times 0.001 \times AWSAR \quad (1)$$

Where:

APLR = Annual pollutant loading rate, in kilograms per hectare, per 365-consecutive-day period.

C = Pollutant concentration in sewage sludge in milligrams per kilograms (dry weight basis).

AWSAR = Annual whole sludge application rate, in metric tons per hectare, per 365-consecutive-day period (dry weight basis).

For this example, the APLRs are:

Pollutant	Concentration (mg/kg)	APLR (kg/ha)
Arsenic	37	0.37
Cadmium	30	0.30
Chromium	2500	25.0
Copper	1000	10.0
Lead	1000	10.0
Mercury	17	0.17
Molybdenum	75	0.75
Nickel	400	4.0
Selenium	14	0.14
Zinc	4000	40.0

4. Calculate the years a pollutant can be applied to the land by dividing the cumulative pollutant loading rates from Table 2 in § 503.13 by the APLRs from Step 3 of this procedure.

Pollutant	CPLR (kg/ha)	APLR (kg/ha/yr)	Years (CPLR/APLR)
Arsenic	14.0	0.37	37.8
Cadmium	18.0	0.30	60.0
Chromium	530.0	25.0	21.2
Copper	46.0	10.0	4.6
Lead	125.0	10.0	12.5
Mercury	15.0	0.17	88.2
Molybdenum	5.0	0.75	6.7
Nickel	78.0	4.0	19.5
Selenium	32.0	0.14	299.0
Zinc	170.0	40.0	4.3

5. Select the lowest number of years calculated in Step 4. For this example, the lowest number of years is 4.3.

6. Sewage sludge with the pollutant concentrations given in Step 1 could be applied to agricultural land at an AWSAR of 10 MT/ha/365-consecutive-day period for a maximum of 4.3 years. After 4.3 years, the amount of zinc applied to the land exceeds the cumulative amount that can be applied to the land.

Appendix D—Procedure To Calculate Maximum Combustion Gas Flow Rate

Equation (5) in § 503.63(f) is used to calculate the pollutant limit for total hydrocarbons for a sewage sludge incinerator. This appendix contains the procedure used to determine the maximum combustion gas flow rate (GF) used in that equation.

Procedure:

1. Calculate the maximum combustion gas flow rate for the sewage sludge incinerator attributable to the combustible portion of the sewage sludge using equation (1):

$$SGF = SF \times VF \times VEHC \times 70,100 \quad (1)$$

Where:

SGF = Maximum combustion gas flow rate attributable to the combustible portion of the sewage sludge, in gram moles per day.

SF = Annual average daily sewage sludge feed rate, in metric tons per day (dry weight basis).

VF = Annual average volatile solids fraction of the sewage sludge solids (dimensionless, less than 1.0).

VEHC = Annual average heat value of the volatile solids in sewage sludge, in kilocalories per gram of volatile solids in sewage sludge.

2. Calculate the gas flow rates from the combustion of all auxiliary fuels in the sewage sludge incinerator using equation (2).

$$FGF = FR \times FC \quad (2)$$

Where:

FGF = Fuel combustion gas flow rate, in gram moles per day.

FR = Annual average daily fuel usage rate, in either pounds per day or cubic feet per day.

FC = Fuel constant: natural gas—17.69, #2 fuel oil—324.8, #6 fuel oil—309.7

3. The maximum combustion gas flow rate (GF) used in equation (5) in § 503.63(f) is the sum of the maximum combustion flow rate attributable to the combustible portion of the sewage sludge (SGF) and the fuel combustion gas flow-rate (FGF).

$$GF = SGF + FGF \quad (3)$$

[FR Doc. 89-2018 Filed 2-3-89; 8:45 am]

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Federal Register

Monday
February 6, 1989

Part III

General Services Administration

41 CFR Parts 201-1 et al.

**Revisions of FIRM Policy To Simplify
the Procurement Process and
Implementation of Initial Phase of the
FIRM Improvement Project; Notice of
Availability of Proposed Rulemaking**

GENERAL SERVICES ADMINISTRATION

41 CFR Parts 201-1, 201-7, 201-16,
201-23, 201-24, 201-30, 201-32, 201-
38, and 201-40

Revisions of FIRM Policy To Simplify the Procurement Process

AGENCY: Information Resources
Management Service, GSA.

ACTION: Notice of proposed rulemaking.

SUMMARY: This proposed rule revises a number of Federal Information Resources Management Regulation (FIRM) management and acquisition policies. A few of the provisions of this rule are also contained in a second proposed FIRM rule that is being published for comment concurrently with this rule. The second proposed rule presents a revised FIRM Part 201-39 that consolidates into a single part all policies and procedures unique to contracting for Federal ADP and telecommunications resources. That regulation will be the first FIRM part published as a result of the FIRM Improvement Project (FIP). The FIP initiative is a major GSA effort to reorganize and rewrite the FIRM.

The FIP uses the current FIRM and proposed changes to the FIRM as the baseline for its revisions. Therefore, the revised Part 201-39 includes changes to acquisition policies and procedures contained in this proposed rule, specifically those contained in Parts 201-32, 201-38, and 201-40. The changes are being published in both proposed regulations to highlight the fact that key FIRM provisions are being revised and to explain the rationale for the changes. The intent is to focus attention on these changes so that agencies will give them appropriate consideration in their comments to GSA. The changes in Parts 201-32, 201-38, and 201-40 will be deleted from this regulation upon its publication as a final rule but will continue to be reflected in the rule revising Part 201-39, as will agency comments regarding these Parts.

FIRM provisions in this rule are being revised with regard to:

- (1) clarifying security provisions;
- (2) updating planning provisions;
- (3) revising GSA review requirements for ADP and Telecommunications schedule acquisitions under maximum order limitations; (4) removing outdated criteria on the selection of discount factors when performing present value analyses; (5) removing provisions which tend to encourage agencies to solicit and evaluate financing methods which can't

satisfy programs needs; (6) eliminating the "only new" and the "all or none" special justifications which are unique to GSA nonmandatory ADP and telecommunications schedule contracts; (7) eliminating information in Commerce Business Daily (CBD) notices which encourage agencies and vendors to inappropriately view GSA nonmandatory ADP and telecommunications schedule contracts as if they were open market solicitations; (8) clarifying provisions regarding the use of functional telecommunications system specifications which tend to encourage agencies to solicit and evaluate sources which can't satisfy user's needs; and (9) removing language regarding selecting lowest overall system/item life cost to avoid misinterpretation when contracting by negotiation.

DATE: Comments are due March 8, 1989.

ADDRESSES: Comments should be submitted to the General Services Administration (KMPR), Project 87.46A, Washington, DC 20405.

FOR FURTHER INFORMATION CONTACT: William R. Loy or Margaret Truntich, Regulations Branch (KMPR), Office of Information Resources Management Policy, telephone (202) or FTS 566-0194. The full text of the proposed final rule is available upon telephone request.

SUPPLEMENTARY INFORMATION: (1) Existing FIRM coverage regarding security requirements is redundant with existing policies, procedures, standards and guidelines issued by other central management agencies. In order to eliminate possible conflicting provisions, Part 201-7 is revised to remove this redundant coverage and to state only basic GSA policy requirements.

(2) Part 201-16 is retitled and revised to better describe its contents regarding planning for information resources activities. Reference is made to current statutory and OMB planning requirements. Agency reporting requirements to GSA have been reduced to only a copy of the agency OMB submissions. The planning policy is stated. The relationship of agency performance of this function to GSA delegations of procurement authority (DPA's) to agencies is described.

(3) The requirement for a specific DPA from GSA when ordering equipment exceeding \$300,000 from GSA nonmandatory ADP schedule contracts is removed. The intent of this action is to eliminate special GSA reviews when agencies acquire ADP equipment through use of GSA nonmandatory ADP

schedule contracts. The requirements that (1) orders be within any applicable ADP schedule contract maximum order limitation (MOL), (2) the FIRM provisions on the use of GSA nonmandatory ADP schedule contracts be met, and (3) appropriate procurement authority be obtained when exceeding GSA blanket DPA thresholds continue in force. To implement this change and to simplify and clarify coverage regarding use of the schedules, the following changes are made: Section 201-23.104-1 (b) and (c) are revised, paragraphs (b) and (h) of § 201-32.206 are revised, paragraphs (c) and (d) of that same section are removed and subsequent paragraphs of that section are renumbered.

Note.—Section 201-40.008 does not require modification in this regard because there is no specific DPA threshold cited for the use of GSA nonmandatory telecommunications schedule contracts.

(4) A new § 201-24.108 removes ambiguity contained in the coverage on present value analysis that appeared at §§ 201-24.208 and 201-24.305. Section 201-24.108 provisions also apply, as the agency determines them applicable, in the evaluation of offers resulting from solicitations. Paragraph (d) of § 201-1.102-2 is revised to remove the reference to OMB Circular A-94. The change to § 201-1.102-2 adds a citation to OMB Circular A-130, which rescinded OMB Circulars A-71, A-90, A-108, and A-121. Section 201-30.009-2 is changed to recognize the new § 201-24.108.

(5) As written, the provisions of § 201-24.208, are being misinterpreted and are encouraging agencies to solicit and evaluate methods of acquisition (e.g., purchase and lease) which cannot satisfy user's needs. In order to more clearly state policies in regard to soliciting and evaluating only methods of acquisition which satisfy program needs, a new § 201-24.107, Evaluation of alternative methods of acquisition, has been added. The section clarifies the relationship between the analysis of alternatives in the acquisition planning process and the evaluation of offers process. The new section replaces §§ 201-24.208 and 201-40.006. Section 201-24.216(d) is revised to recognize the new § 201-24.107.

(6) Current provisions regarding "only new" and "all or none" requirements when using GSA nonmandatory ADP and telecommunications schedule contracts have resulted in confusion regarding their applicability. Therefore, §§ 201-32.206(a)(2) and 201-40.008(a)(2) are revised to delete the automatic

requirement for special justifications for "only new" and "all or none" specifications.

(7) Under the nonmandatory ADP and telecommunications schedule contract program, the CBD notice is used to advertise the specific make and model of products and services the agency intends to select. The intent of the CBD notice is to give vendors an opportunity to identify additional products and services which are comparable to those advertised in the CBD, and which should be considered by the selecting agency. Therefore, the need to advertise underlying requirements in the CBD has been removed from the newly redesignated §§ 201-32.206(d)(2)(v) (see paragraph (3) above) and 201-40.008(b)(2)(v).

(8) As the competitive marketplace for telecommunications technology resources has grown, the provisions of § 201-38.012, Use of functional telecommunications system specifications, have been misinterpreted. Therefore, the section is revised to clarify its intended meaning: Namely, a neutral policy that is transparent to whether the offering is or is not subject to state or other regulatory or judicial conditions (e.g., tariffs). The provision is not intended to require agencies to always solicit both tariffed and non-tariffed offerings, nor to require solicitation of either class of offerings to the exclusion of the other.

(9) Current language in § 201-32.102(a) regarding selecting the method of acquisition that represents the lowest overall system/item life cost has been misinterpreted when negotiated contracts are used. The paragraph has been revised to clarify its meaning and to make it consistent with language used in the Federal Acquisition Regulation.

(10) The General Services Administration has determined that this rule is not a major rule for purposes of Executive Order 12291 of February 17, 1981. GSA decisions are based on adequate information concerning the need for and the consequences of the rule. The rule is written to ensure maximum benefits to Federal agencies. This is a Governmentwide management regulation that will have little or no net cost effect on society. The rule is therefore not likely to have significant impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

List of Subjects in 41 CFR Parts 201-1, 201-7, 201-16, 201-23, 201-24, 201-30, 201-32, 201-38, and 201-40

Computer technology, Government procurement, Government property management, Security measures,

Telecommunications, Information resources activities, Competition.

Dated: February 22, 1989.

Francis A. McDonough,

Deputy Commissioner for Federal Information Resources Management.

[FR Doc. 89-2611 Filed 2-3-89; 8:45 am]

BILLING CODE 6820-BR-M

41 CFR Parts 201-1, 201-2, 201-6, 201-8, 201-11, 201-23, 201-24, 201-30, 201-32, 201-38, 201-39, 201-40, 201-41

Implementation of Initial Phase of the FIRMIR Improvement Project

AGENCY: Information Resources Management Service, GSA.

ACTION: Notice of availability of proposed rulemaking.

SUMMARY: This proposed rule consolidates into a single FIRMIR part, 41 CFR Part 201-39, all policies and procedures unique to acquiring Government ADP and telecommunications resources by contract. The intent is to enable Federal contracting personnel to more easily use the FIRMIR in conjunction with the Federal Acquisition Regulations (FAR) and to more easily locate the FIRMIR's contracting policies and procedures. To achieve this, FIRMIR Part 201-39 has been organized for consistency with the FAR structure and redundant material has been eliminated.

In addition, for the convenience of FAR users, GSA and the FAR councils have agreed to reprint FIRMIR Part 201-39 as an appendix to the FAR. FIRMIR Part 201-39 will be reprinted in the FAR appendix exactly as it will appear in the FIRMIR. GSA will submit future changes to FIRMIR Part 201-39 to the public, Federal agencies, and the FAR councils for review and comment. These changes will be under the sole authority of the GSA Administrator. Changes to FIRMIR Part 201-39 will also be reprinted in the FAR appendix.

DATE: Comments are due: April 7, 1989.

ADDRESS: Comments should be submitted to the General Services Administration (KMPP), Project 88-1, Washington, DC 20405.

FOR FURTHER INFORMATION CONTACT: Patricia Phillips or David Mullins, Policy Branch (KMPP), Office of Information Resources Management Policy, telephone FTS or (202) 535-7462. The full text of the proposed rule for Project 88-1 is available upon request, by telephoning FTS or (202) 535-7462.

SUPPLEMENTARY INFORMATION: (1) In the January 11, 1988, Federal Register, GSA announced the FIRMIR Improvement Project, including a proposed new FIRMIR structure. This proposed rule, which will codify Part 201-39, represents the initial phase of this effort.

Note.—Several changes are made to portions of the current FIRMIR so this new Part 201-39 can be codified following reconciliation of NPR comments.

(2) The changes proposed for the effected FIRMIR parts are explained in the following paragraphs:

(a) Part 201-1 is amended to reference the new Part 201-39, as applicable.

(b) Part 201-2 is amended to revise, add and delete definitions of words and terms.

(c) Part 201-6 is amended to remove references to FIRMIR sections that are removed.

(d) Part 201-8 is revised to remove the major portion of the text. Specifications for Federal standards are now covered by new Subpart 201-39.10.

(e) Part 201-11 is revised to remove the major portion of the text. The subject area is covered in Subparts 201-39.6 and 201-39.17.

(f) Part 201-23 is amended to remove references to FIRMIR sections that are removed.

(g) Part 201-24 is amended to remove major portions of the text. In some instances, FIRMIR information was deleted because the FAR provides adequate coverage of the subject. Other information from this part has been rewritten and relocated to Parts 201-30 and 201-39.

(h) Part 201-30 is amended to remove portions of the text. Portions of the text have been rewritten and relocated to Part 201-39. Guidance concerning specifications for Federal information processing resources requirements, including compatibility requirements, has been amended.

(i) Part 201-32 is removed and reserved. The information from this part has been revised and relocated to Part 201-39.

(j) Part 201-38 is amended to remove references to FIRMIR sections that are removed.

(k) Part 201-39 is activated and titled "Acquisition of Federal Information Processing Resources by Contracting." It contains the policies, procedures, solicitation provisions and contract clauses affecting contracting for Federal information processing resources.

Note.—Subpart 201-39.10 contains policies and procedures regarding solicitation specifications for implementing the requirements of the Computer Security Act of

1987 regarding security training and plans for the security and privacy of Federal computer systems. GSA believes that it would not be appropriate to prescribe specific contract clauses to implement these requirements. However, GSA welcomes comments and recommendations on whether specific clauses should be developed and added to Subpart 201-39.52.

(l) Part 201-40 is removed and reserved. The information from this part has been revised and relocated to Part 201-39.

(m) Part 201-41 is amended to remove a reference to a FIRMR part that is revised.

(3) The General Services Administration has determined that this rule is not a major rule for the purposes of Executive Order 12291 of February 17, 1981. GSA actions are based on adequate information concerning the

need for, and the consequences of the rule. The rule is written to ensure maximum benefits to Federal agencies. This is a Governmentwide regulation that will have little or no net cost effect on society. It is therefore certified that this rule will not have a significant impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

List of Subjects in 41 CFR Parts 201-1, 201-2, 201-6, 201-8, 201-11, 201-23, 201-24, 201-30, 201-32, 201-38, 201-39, 201-40, 201-41

Acquisition methods, Acquisition planning, Clause, Commerce Business Daily, Competition, Contractor, Conversion, Deviation, Evaluation, Evaluation factors, Federal standards, Federal information processing

resources, GSA Board of Contract Appeals (GSCBA), GSA nonmandatory schedule contract, Lease, Lowest overall cost, Options, Outdated Federal information processing equipment, Negotiation, Mandatory, Multiple award schedule, Maximum order limitation, Other than full and open competition, Privacy, Protest, Present value, Publicizing, Purchase, Sealed bidding, Security, Source selection, Specific make and model, Specifications, Synopsis, System life, Telecommunications, Teleprocessing Services Program (TSP).

Dated: August 10, 1988.

Francis A. McDonough,

Deputy Commissioner for Federal Information Resources Management.

[FR Doc. 89-2612 Filed 2-3-89; 8:45 am]

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Federal Register

**Monday
February 6, 1989**

Part IV

Environmental Protection Agency

**Dinocap: Intent To Cancel Registrations;
Conclusion of Special Review; Notice of
Final Determination**

ENVIRONMENTAL PROTECTION AGENCY

[OPP-30000/45B; FRL-3515-1]

Dinocap: Notice of Intent To Cancel Registrations; Conclusion of Special Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of final determination and intent to cancel; notice of intent to deny applications for registrations.

SUMMARY: This Notice announces EPA's intent to cancel registrations and to deny applications for registration for all pesticide products that contain dinocap as the active ingredient unless the changes specified in this Notice are made to the registrations or applications for registration. This action concludes EPA's Special Review of dinocap and is based on the Agency's determination that the use of dinocap without the modifications specified herein will result in unreasonable adverse effects to applicators.

DATE: Requests for a hearing by a registrant, applicant, or other adversely affected parties must be received on or before March 8, 1989 or, for a registrant or applicant, within 30 days from their receipt by mail of this Notice, whichever date is later.

ADDRESS: Requests for a hearing must be submitted to: Hearing Clerk (A-110), Environmental Protection Agency, 401 M Street SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT:

Paul Parsons, Registration Division (TS-767C), Office of Pesticide Programs, Environmental Protection Agency, 401 M Street SW., Washington, DC 20460
Office location and telephone number: Room 1020, CM #2, 1921 Jefferson Davis Highway, Arlington, VA, (703-557-0064).

SUPPLEMENTARY INFORMATION: This Notice announces EPA's decision to cancel registrations and deny applications for registrations of pesticide products containing dinocap as an active ingredient unless the terms and conditions of registration are amended to comply with the terms and conditions set forth in this Notice. This Notice concludes the Agency's administrative Special Review of the risks and benefits of dinocap which was initiated in a Federal Register notice of January 9, 1985 (50 FR 1119).

When the Notice of Preliminary Determination concerning dinocap was published on October 29, 1986 (51 FR 39577), supporting documents were made available to any requesting party. After carefully evaluating the risk/

benefit information, the Agency concluded in the Preliminary Determination that the risks posed by the use of dinocap outweighed the benefits of continued registration, unless certain modifications to the terms of registration were made. The Agency proposed to require closed mixing systems, additional protective clothing, application from vehicles with enclosed cabs for some uses, restriction of use to certified applicators for agricultural uses, and a teratogenicity warning statement on product labels for agricultural use as well as products registered for use in home gardens and home lawns.

The Agency's preliminary determinations were submitted to the FIFRA Scientific Advisory Panel (SAP) and the U.S. Department of Agriculture (USDA) for review pursuant to sections 6(b) and 25(d) of FIFRA. Comments were also solicited from the registrants and any other interested parties. After reviewing all comments, the Agency has determined that the use of dinocap products as currently registered will result in risks to mixer/loaders and applicators that are not outweighed by the benefits of the use of dinocap. By making modifications to the terms and conditions of dinocap registrations, as detailed in this Notice, the Agency has determined that the benefits of the use of dinocap will outweigh the risks of such use. These modifications are:

1. The Agency will require all dinocap labels to bear the statement, "Use of this product may be hazardous to your health. This product has been determined to cause birth defects in laboratory animals."

2. The Agency will lower the rate of application of liquid formulations of dinocap for use on pears to 0.47 lbs./acre.

3. For the use of dinocap as a wettable powder on apples, the Agency will require mixer/loaders and applicators to use additional protective clothing and equipment not currently required. When warm weather conditions make the use of certain protective clothing impractical, applications for this use will be from a vehicle with a closed cab.

4. For the use of dinocap as a wettable powder on pears, or as a liquid or wettable powder on grapes and field cucurbits, the Agency will require mixer/loaders and applicators to use additional protective clothing and equipment not currently required, and will require that they make all applications of dinocap for these uses from a vehicle with a closed cab.

This Notice is organized into seven units. Unit I is the introduction, describing the chemical background and

regulatory history of dinocap, and the legal basis of the Special Review process. Unit II summarizes the Agency's analyses of the risks and benefits of dinocap, as presented in the Preliminary Determination (51 FR 39577), and described in greater detail in the Technical Support Document, issued October 14, 1986. Unit II also responds to the comments of the Scientific Advisory Panel (SAP), U.S. Department of Agriculture (USDA), and Rohm and Haas Company, the registrant and only other commenter, on the Agency's analysis of the risks and benefits of dinocap use. Unit II also contains the Agency's final position on the risks and benefits of dinocap. Unit III contains the complete text of the comments of the SAP and USDA and discusses their comments as well as comments of Rohm and Haas that were not addressed in Unit II. Unit IV describes the Agency's final determinations and the regulatory actions required by this Notice. Unit V describes various procedural matters including procedures for requesting a hearing. Unit VI discusses the public docket for this Special Review. Unit VII is the bibliography.

I. Introduction

A. Chemical Background

Dinocap is the common name for a mixture of the cis- and trans-isomers of 2,4-dinitro-6-octylphenol crotonate and 2,6-dinitro-6-octylphenol crotonate; about 85 percent of technical dinocap is composed of these compounds, the remainder being poorly characterized reaction products. Dinocap, a fungicide, is registered to control powdery mildew diseases, and also has limited use as a miticide. About 100,000 pounds of active ingredient are applied annually in the United States. Rohm and Haas is the sole producer of technical dinocap and markets end-use products containing dinocap; other companies buy technical dinocap from Rohm and Haas and formulate it into end-use products as well. There are about 80 federally registered products containing dinocap, 20 intrastate products, which have been called in for Federal registration, and 4 special local needs registrations issued pursuant to FIFRA section 24(c).

Apples account for about 92 percent of the annual use of dinocap; application is made to apples from early spring to late summer. An estimated 30 percent of the U.S. apple acreage and up to 80 percent of certain varieties are treated. Dinocap is also applied to other fruits, vegetables, and ornamental crops. Its home garden use accounts for less than

1 percent of all dinocap use. There is negligible greenhouse use.

B. Regulatory History

On January 9, 1985, EPA issued a Notice of Initiation of Special Review of Registrations of Pesticide Products containing dinocap (50 FR 1119) based on the Agency's determination that pesticide products containing dinocap met or exceeded the risk criteria in 40 CFR 162.11(a)(3)(ii)(B) for producing a "chronic or delayed toxic effect in test animals." Specifically, the Special Review was initiated because laboratory studies in rabbits demonstrated that dinocap has the potential to produce teratogenic effects. The Agency determined that dermal and inhalation exposure to dinocap may present significant risks to pregnant women who apply the product.

The risk criteria set forth in 40 CFR 162.11(a)(3)(ii)(B) have been superseded by new criteria set forth in 40 CFR 154.7(a)(2), which provide that a Special Review may be conducted if the use of a pesticide "may pose a risk of inducing in humans an oncogenic, heritable genetic, teratogenic, fetotoxic, reproductive effect, or a chronic or delayed toxic effect, which risk is of concern in terms of either the degree of risk to individual humans or the number of humans at some risk * * *." Dinocap also exceeds the new criteria. Based on an evaluation of the available information, including information received in public comments to the Notice of Special Review, on October 14, 1986, EPA issued a Notice of Preliminary Determination and Notice of Availability of the Technical Support Document and a Draft Notice of Intent to Cancel. In the Preliminary Determination the Agency announced its proposed decision to cancel registrations of dinocap products unless certain modifications were made to the terms and conditions of registration. These proposed modifications were:

1. All products for all uses (pears, apples, grapes, field cucurbits, greenhouse uses, field roses, peaches and apricots, and home lawn and gardens) must bear a teratogenicity warning statement.
2. All wettable powder formulations for use on pears, apples, grapes, field cucurbits, greenhouse uses, field roses, peaches and apricots must be packaged in water soluble bags.
3. All ground boom, airblast and mist blower applications to pears, apples, grapes, field cucurbits, greenhouse uses, field roses, peaches and apricots must be made from enclosed vehicles.
4. Applicators must wear long-sleeved shirts and long pants, and will

also be required to wear chemical-resistant gloves when exiting the vehicle or while repairing equipment.

5. All products for use on pears, apples, grapes, field cucurbits, greenhouse uses, field roses, peaches and apricots must be classified for restricted use, with the additional requirement that certified applicators be physically present while the application is taking place.

For liquid products for use on peaches and apricots, and wettable powder products already packaged in water soluble packaging for use on peaches and apricots, there were adequate margins of safety. The Agency believed that these modifications would provide adequate margins of safety, taking into consideration risks and benefits, for all categories of mixers, loaders, and applicators.

In the Preliminary Determination, the Agency also noted that the manufacturer of technical dinocap, Rohm and Haas, was developing a dinocap technical product of higher purity than the currently available dinocap. Current technical dinocap is an approximately 80 to 85 percent pure mixture of the cis- and trans- isomers of 2,4-dinitro-6-octylphenol crotonate and 2,6-dinitro-6-octylphenol crotonate, the remainder consisting of other reaction compounds. There was some evidence, based on a teratogenicity screening test performed by the Agency at Research Triangle Park, North Carolina, that the isomers of dinocap were not developmentally toxic (Ref. 21). If this evidence were confirmed, it would indicate that the developmentally toxic component of dinocap is the other reaction products. Therefore, a purer technical dinocap should be less developmentally toxic, since it would contain less of the developmentally toxic component. The new technical material is about 95 percent pure. On January 14, 1988, the Rohm and Haas Company applied to amend the registration of its current technical dinocap product to reflect the new, purer form of dinocap. The Agency is reviewing this application to amend the registration of dinocap, and will decide whether to approve the amended registration pending the submission and review of required studies. This Notice addresses only the current, less pure, dinocap formulation.

The most common formulation of dinocap is as a mixture with another fungicide, mancozeb. Mancozeb and several related pesticides, collectively called the "EBDC fungicides", are also undergoing special review. This Notice, however, concerns only the risks and benefits of dinocap.

Following review of public comments on the Preliminary Determination and all available data, the Agency has determined that the risks of developmental toxicity remain; however, these risks can be reduced to acceptable levels if the modifications specified in Unit IV of this Notice are made. The Agency will cancel the registrations of dinocap products and deny applications for registration of such products which have not complied with the modified terms and conditions of registration set forth in this Notice within 30 days of publication or receipt of this notice by the registrants, whichever occurs later.

C. Legal Background

Before a pesticide product may be lawfully sold or distributed in either intrastate or interstate commerce, the product must be registered by the Environmental Protection Agency (EPA) under sections 3(a) and 12(a)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (FIFRA). A registration is a license allowing a pesticide product to be sold and distributed for specified uses in accordance with specified use instructions, precautions, and other terms and conditions. In order to obtain a registration for a pesticide under the FIFRA Act, an applicant for registration must demonstrate that the pesticide satisfies the statutory standard for registration. The standard requires, among other things, that the pesticide perform its intended function without causing "unreasonable adverse effects on the environment," under FIFRA section 3(c)(5). The term "unreasonable adverse effects on the environment" is defined under FIFRA section 2(bb) as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." This standard requires a finding that the benefits resulting from the use of the pesticide exceed the risks resulting from use, when the pesticide is used in compliance with the terms and conditions of registration or in accordance with commonly recognized practices.

The burden of proving that a pesticide satisfies the statutory standard is on the proponents of registration and continues as long as the registration remains in effect. Under section 6 of FIFRA, the Administrator may cancel the registration whenever it is determined that the pesticide causes unreasonable adverse effects on the environment. The Agency created the Special Review process to facilitate the identification of

pesticide uses which may not satisfy the statutory requirements for registration and to provide an informal procedure to gather and evaluate information about the risks and benefits of these uses.

A Special Review is initiated if a pesticide meets or exceeds risk criteria set out in the regulations at 40 CFR Part 154. The Agency announces that a Special Review is initiated by publishing a notice in the **Federal Register**.

Registrants and other interested persons are invited to review the data upon which the review is based and to submit data and information to rebut the Agency's conclusions. Such data and information may rebut the Agency's conclusions by showing that the Agency's initial determination was in error or by showing that use of the pesticide is not likely to result in any significant risk to human health or the environment. In addition to submitting evidence to rebut the Agency's initial determination, commenters may submit relevant information to aid in the determination of whether the economic, social, and environmental benefits of the use of the pesticide outweigh the risks of use. After reviewing the comments received and other relevant material obtained during the Special Review process, the Agency makes a decision on the future status of the pesticide registrations.

The Special Review process may be culminated in several ways, depending upon the outcome of the Agency's risk/benefit assessment. If the Agency concludes that all of its risk concerns have been adequately rebutted, the pesticide registration will be maintained unchanged. However, if all risk concerns are not rebutted, the Agency will proceed to a risk/benefit assessment. In determining whether the use of a pesticide poses risks which are greater than the benefits, the Agency considers possible changes to the terms and conditions of registration which can reduce risks, and the impacts of such modifications on the benefits of use. If the Agency determines that such changes reduce risks to the level where the benefits outweigh the risks, it may require that such changes be made in the terms and conditions of the registrations. Alternatively, the Agency may determine that no changes in the terms and conditions of a registration will adequately assure that use of the pesticide will not pose any unreasonable adverse effects. If the Agency makes such a determination, it may seek cancellation, and, if necessary, suspension. In either case, the Agency must issue a Notice of Intent to Cancel the registrations. If the Notice

requires changes in the terms and conditions of registration, cancellation may be avoided by making the specified changes set forth in the Notice.

Adversely affected persons may also request a hearing on the cancellation of a specified registration and use, and if they do so in a legally effective manner, that registration and use will be continued pending a decision at the close of an administrative hearing.

II. Risk and Benefit Assessments and Evaluation of Comments

A. Summary of Toxicological Studies Used to Support the Preliminary Decision

The effect of concern for dinocap is developmental toxicity. The Agency "Guidelines for the Health Assessment of Suspect Developmental Toxicants" (51 FR 34028) define developmental toxicity as including (1) death of the developing organism, (2) malformation, (3) altered growth, and (4) functional deficiency. Teratogenicity is considered to be synonymous with structural anomalies, i.e., malformations.

Rohm and Haas have submitted two oral teratology studies of dinocap (Refs. 1 and 2); the effects observed were primarily neural tube and skull malformations. These studies, described on pp. II-1-2 of the Technical Support Document, showed the oral teratogenicity no-observed effect level (NOEL) in the rabbit to be 0.5 mg/kg/day. Based on these studies, a Special Review was initiated because of the Agency's concern that exposure to dinocap posed a risk of teratogenic effects to humans.

After the initiation of the Special Review, Rohm and Haas submitted a dermal dose-range finding study (Ref. 3) and a primary dermal teratology study in rabbits (Ref. 4). Dermal exposure to technical dinocap during the period of organogenesis produced dermal irritation in rabbits at all dosage levels tested (25, 50, 100 mg/kg/day). Frank systemic toxicity in the dams was observed in the 100 mg/kg group as evidenced by significant decreases in food consumption and body weight gains observed during the dosing period. There were several indications of developmental toxicity seen in this study.

The incidence of litters with skeletal abnormalities was increased in all treated groups (11.8, 18.7, 20.0, and 21.4 percent, for the control, 25, 50 and 100 mg/kg/day groups, respectively). An increase in both litter and fetal incidents of "skull, bone islands" was found at the highest dose tested (100 mg/kg/day). The occurrence of extra skull

ossification centers, considered to be a form of fetal toxicity, is unusual. Reduced fetal weight was also observed at the 100 mg/kg/day dose.

Developmental toxicity in the form of reduced fetal weight was observed at the highest dose (100 mg/kg/day). Since statistically significant decreases in fetal weight were noted at the 200 mg/kg/day dose (Ref. 3), the decrease in fetal weight noted at the 100 mg/kg/day was regarded as potentially treatment-related. Scoliosis (lateral curvature of the spine), previously observed in the oral studies, was also present in the dermal study but did not attain a statistical difference. Three of the 40 treated litters (affecting 1 litter in each of the 25, 50, and 100 mg/kg/day groups) had scoliosis as compared to 3/155 of the historical control litters. Further, an increase (not statistically different) in the incidence of skull abnormalities was found at the 100 mg/kg/day dosage level. The findings in the 100 mg/kg/day dose could be biologically significant and a dermal development toxicity NOEL was therefore established at 50 mg/kg/day.

Because of the dermal study, in the Preliminary Decision the effect of concern for dinocap was broadened to the general endpoint of developmental toxicity rather than the narrow definition generally associated with the term teratogenicity. Teratogenicity, as noted before, is usually considered to be synonymous with structural anomalies. Because all four manifestations of developmental toxicity are of concern, the Agency Guidelines direct that developmental toxicity risk assessments be based on the NOEL for the most sensitive manifestation. The Agency used the dermal NOEL rather than the previously established oral NOEL because most of the dinocap exposure to applicators, the group at highest risk, is via the dermal route.

1. *Scientific Advisory Panel comments on the toxicological data base.* The Agency's proposed decision to cancel the uses of dinocap (unless certain modifications were made to the terms of registration) was submitted to the Scientific Advisory Panel (SAP) for review in accordance with section 6 of FIFRA. The Panel's report, which is reprinted in its entirety in Unit III of this document, noted several comments on the dinocap developmental toxicity data. First, the Panel agreed that the weight-of-evidence supports the conclusion that dinocap is a developmental toxicant in the rabbit by the oral route. Second, the Panel believed that the small group size and limitation of studies to one species

limited the certainty of calculated margins of safety. They believed that the dermal data were inconclusive and the data could not be used to establish a confident NOEL and margin of safety. The Panel offered several possibilities for improving the data set. They suggested that teratology studies be done in another species, first by the oral route. Other suggestions and comments of the Panel are discussed in Unit II.B. of this document.

The Agency does not agree with the SAP that the available dermal teratology studies may not permit calculation of MOS's for dinocap. The study has been carefully reviewed and judged adequate for risk assessment purposes. The number of animals tested was in accordance with Agency guidelines. The Agency does not believe that limitation of dermal data to one species, the rabbit, invalidates any conclusions on risk. The developmental toxicity seen in the dermal teratology study in rabbits is consistent with the developmental toxicity seen in the oral teratology studies in rabbits and another test species. Two oral studies using CD-1 mice (Refs. 7 and 20) demonstrated the developmental toxicity effects of dinocap. Further, it is Agency policy to use data obtained by the expected route of human exposure, when such data are available. In the case of dinocap, agricultural workers are primarily exposed by the dermal route; thus, data from the dermal developmental toxicity study are most appropriate for risk assessment.

2. *Other comments on toxicology studies.* Rohm and Haas commented on the dermal dose selected as the NOEL for dinocap, saying that the effects observed were not statistically significant nor dose-related, and that the reduced fetal weights observed were within historical controls.

As noted in the Preliminary Determination, and as the SAP has agreed, oral developmental toxicity studies in the rabbit have shown a developmental toxicity NOEL of 0.5 mg/kg, with a variety of neural tube-related anomalies observed at dose levels of 3.0 mg/kg and greater. In dermal testing in the rabbit, at dose levels of 0, 25, 50, and 100 mg/kg, compound-related teratogenic findings did not appear to be statistically increased at any dose level. However, indications of structural abnormalities (skull, delayed ossification) and altered growth were observed at 100 mg/kg. Altered growth (decreased fetal weight) became significant at the 200 mg/kg. Although the incidences at the 100 mg/kg dosage level were not statistically different

from concurrent and historical control ranges, they still were biologically relevant in light of the positive trend. As per the consensus obtained from a workshop organized by the Agency (Ref. 22) an adverse developmental effect occurring at the statistically significant level at the highest exposure level (i.e., 200 mg/kg/day) can be considered treatment related even at lower doses (i.e., 100 mg/kg/day) in which the observed difference in incidence from the concurrent control value may not achieve statistical significance. A dermal developmental toxicity NOEL was therefore conservatively established by the Agency at the next lower dose, 50 mg/kg/day. The Agency has used this value in calculating margins of safety in the Final Determination.

B. Exposure and Risk Determinations

1. *Summary of exposure and risk assessment in the Preliminary Determination.* The exposure assessment used in the Preliminary Determination considered only dermal exposure of mixer/loaders and applicators from the agricultural and home uses of dinocap. Although inhalation was cited as a route of exposure in initiating the Special Review, it was not exhaustively evaluated because it comprises only a small component of total exposure (usually less than 1 percent) and does not significantly affect margins of safety. Dietary exposure was not considered at length because worst case calculations at the time of the initiation of the Special Review showed that food residues of dinocap at tolerance levels were within adequate margins of safety (>100) for the risks of developmental toxicity. Farmworkers who do not mix, load, or apply dinocap have adequate margins of safety (>100) for the risks of developmental toxicity even if the farmworkers reenter treated areas on the same day that dinocap is applied (Ref. 15).

At the time of the Preliminary Determination, dinocap labels for agricultural use required that mixer/loaders wear protective gloves, boots, coveralls, a face shield or goggles, and a chemical-resistant apron. The exposure analysis in the Preliminary Determination assumed that agricultural mixer/loaders wore the protective clothing required on the label, and that applicators wore a long-sleeved shirt and pants (Refs. 16 and 23). It was also assumed that the same person did both the mixing/loading and application. It was estimated that approximately 825 applicators were women. Other assumptions regarding exposure are

detailed on pages II-7 and II-8 of the Technical Support Document.

In estimating the range of likely exposures for workers involved in application of dinocap, the Agency used a standard methodology in which exposure data for other pesticides, "surrogate data", are used to derive exposure estimates (Ref. 10). Surrogate studies are used to estimate dermal exposure to pesticides because the factors that most influence pesticide dermal exposure are formulation, application method, and application rate. These factors are more related to a pesticide's use patterns than to the properties of the pesticide itself. Thus, by knowing the formulation, application rate, and application method of a pesticide, and by knowing the average area of a crop to be treated, it is possible to estimate dermal exposure to a pesticide on the basis of how much of the pesticide a mixer/loader or applicator handles. Therefore, dermal exposure to dinocap was calculated by combining the results of surrogate studies with information about dinocap use patterns. The following Table 1 shows the estimated range of combined mixing/loading and application exposures to dinocap by crop and formulation type. The Agency used these exposure values in calculating Margins of safety in the Preliminary Determination.

TABLE 1.—COMBINED MIXER/LOADER AND APPLICATOR EXPOSURES TO DINOCAP (IN MG/KG/DAY) USED IN THE PRELIMINARY DETERMINATION

Crop	Formulation	Combined exposure
Peaches/ Apricots.	Liquid.....	0.11-0.16
	Wettable powder ..	0.14-0.21
Pears.....	Liquid.....	0.50-1.2
	Wettable powder ..	0.66-1.6
Apples.....	Liquid.....	0.40-0.50
	Wettable powder ..	0.53-0.66
Grapes.....	Liquid.....	0.66-1.7
	Wettable powder ..	0.88-2.3
Field cucurbits.....	Liquid.....	0.16
	Wettable powder ..	(0.084-1.9) ¹
Field roses.....	Liquid.....	0.36
	Wettable powder ..	(0.28-2.1) ¹
Greenhouse uses.	Liquid.....	0.21-0.26
	Wettable powder ..	0.27-0.35
Homeowner garden.	Liquid.....	0.16-0.25
	Dust.....	.0056-.022 ²
Homeowner turf....	Liquid.....	.0016-.0084
	Dust.....	.016

¹ Geometric mean (range). Dinocap is applied to field cucurbits by ground booms rather than by air blast sprayers; exposure values from the surrogate database for ground boom applications range over three orders of magnitude, with most of the data points at the lower end of the range. Because of this wide range, a geometric mean exposure was calculated for field cucurbits rather than a simple weight-

ed mean. A geometric mean is more representative under these conditions because it is less influenced by outlying data points. Both the geometric mean and the range are shown here, however.

² In the Technical Support Document, the higher end of this range was reported to be 0.222 mg/kg/day; the correct value is 0.022 mg/kg/day. The MOS calculations for this use have been recalculated with the lower value throughout this Notice.

Risks presented by developmentally toxic pesticides, such as dinocap, are expressed in terms of "margins of safety" (MOS). The margin of safety is a safety criterion used to assess hazard and is defined as the ratio of the no-observed effect level (NOEL) to estimated daily exposure. Generally, the Agency becomes concerned when the margin-of-safety for a particular use of a

developmentally toxic pesticide is less than 100. In determining risk from dinocap exposure, the Agency also evaluated available pharmacokinetic data in order to establish the internal absorbed dose. At the time the dermal teratology study was submitted, Rohm and Haas also submitted a dermal pharmacokinetic study of dinocap in female rabbits and in rhesus monkeys. In the pharmacokinetic study in female rabbits, conducted as an adjunct to the rabbit dermal teratology study (Ref. 6), the doses used were the same as those in the dermal teratology study. It was found that 5.1 percent of the applied dose was absorbed.

In the dermal penetration study of dinocap in rhesus monkeys (Ref. 24), it was determined that the dermal absorption rate was 15.7 percent. The higher absorption rate found in monkeys vs. rabbits was reflected in the margin-of-safety calculations in the Preliminary Determination. This was done because it was assumed that the dermal kinetics in monkeys was similar to humans. Pages II-5 and II-6 of the Technical Support Document contain a more detailed discussion of these two studies.

The following formula was used in the Preliminary Determination to calculate margins of safety:

$$0.051(\text{dermal absorption in rabbits}) \times 50 \text{ mg/kg/day NOEL}$$

$$0.157(\text{dermal absorption in monkeys}) \times \text{Applicator exposure mg/kg/day}$$

Based on the above formula, the Agency calculated MOS's for all use sites and formulation types (see following Table 2). The exposure values used are those found in Table 1 of this document.

TABLE 2.—MARGINS OF SAFETY (MOS'S) IN THE PRELIMINARY DETERMINATION

Crop/Formulation	MOS
Peaches/Apricots:	
Liquid.....	147-101
Wettable powder.....	116-77
Pears:	
Liquid.....	32-14
Wettable powder.....	25-10
Apples:	
Liquid.....	41-32
Wettable powder.....	31-25
Grapes:	
Liquid.....	24-10
Wettable powder.....	19-7
Field Cucurbits: ¹	
Liquid.....	102 (193-9)
Wettable powder.....	45 (58-8)
Field Roses:	
Liquid.....	77-62
Wettable powder.....	60-46
Greenhouse liquid.....	102-65
Home Garden: ²	
Liquid.....	² 2900-732
Dust.....	10151-1934
Home Turf: Liquid.....	1015

¹ As explained in Footnote 1 of Table 1, there was a very wide range of exposures for the field cucurbit use of dinocap, and so the extremes of the range and the geometric mean of the range were given. These MOS's for the field cucurbit use of dinocap were calculated from both the extremes and the geometric mean of the exposure values.

² Due to a typographical error, this MOS was reported to be 738 in the Preliminary Determination. The correct value is 732.

2. *SAP comments on exposure and risk assessment.* A large measure of the Panel's concerns about the inadequacy of the dermal studies for establishing a confident NOEL and margin of safety was apparently based on lack of estimation of dose (internal). The Panel suggested that additional dermal

teratology studies be conducted when absorbed dose reaches a steady state, so that dose could be measured accurately. Where appropriate they suggested using urinary metabolites to quantify the dose that gets metabolized as well as determining exposure on the basis of metabolite levels in plasma and tissue. They expressed concern that dermal absorption estimates in humans reflected only the concentration of dinocap on the skin surface and not the dose delivered to potential target tissues.

In regard to the SAP's first and last comment above, the Agency notes that its calculations in the Preliminary Determination did reflect an estimate of absorbed dose, based on rabbit and monkey pharmacokinetic data, and not just the concentration of dinocap on the skin. The Agency believed it had achieved a reasonable estimate of internal absorbed dose.

Because of the many variables involved in attempts to determine absorbed dose from measurements based on metabolite levels in urine, plasma and tissue, this would not be a practical approach at this time. That metabolite data would not be relevant is especially true in this case, in which the registrant is actively providing the basic data to support the registration of a new technical material; the new material appears to be less developmentally toxic than the dinocap under Special Review.

The Panel also commented that they were not convinced that the 50 percent reduction in exposure attributed to the use of long-sleeved shirts and long pants was appropriate. Although not stated, the Panel's concern appears to be that the value is too high, i.e., penetration through clothing may be higher than 50 percent. Rohm and Haas objected that

the 50 percent value understates the amount of protection provided by protective clothing. Protective clothing is defined in 40 CFR 170.2(d) as including a long-sleeved shirt and long pants.

EPA recognizes that no single value will accurately represent the extent to which protective clothing reduces pesticide exposure for every individual wearing such clothing. In fact, data show that there is considerable variation in the protection level afforded by wearing protective clothing, both between individuals and for the same individual under different conditions. Thus, it is very difficult to characterize the impact on exposure from wearing protective clothing.

When assessing the impact of wearing protective clothing on exposure to dinocap, the Agency used surrogate monitoring data, that is, monitoring data collected for other pesticides applied under conditions similar to dinocap. The dinocap exposure study submitted by Rohm and Haas monitored dermal exposure underneath water-resistant rainsuits. The Agency did not use these data because it believes the use of water-resistant clothing is atypical. The use of surrogate data is necessary because many variables are encountered when conducting exposure monitoring studies in the field. Some of these variables, such as weather and the care exercised by applicators, cannot be controlled by the supervisor of the study; because of these uncontrollable factors, experimental results can vary widely. Thus, the Agency believes that a more scientifically reliable assessment of the value of protective clothing results from using a broad range of surrogate exposure data than from relying on the results of a few studies or even a single study of a pesticide of special concern, since the more limited

data base would not be as likely to reflect the wide range of variables affecting exposure.

The surrogate data base shows great variability in pesticide penetration values, but with most data points in the 5 to 10 percent penetration range. Davies (Ref. 5) reported that ethion penetration through the clothing of mixers averaged 28 percent, and 17 percent for airblast applicators. Maddy (Ref. 12) determined that the penetration of dinoseb through the outer layer of the clothing of mixer/loader truck drivers averaged 2.0 and 2.3 percent on the first day of the study, and 240 and 1.2 percent on the next day. For hand wand applicators, the average penetration of dinoseb was 6.6 and 170 percent for one applicator, and 5.9 and 72 percent for a second applicator. Nigg (Ref. 13) reported that the mean penetration of dicofol through the shirts of mixer/loaders and applicators ranged from 1.3 to 35 percent, with the penetration on any given day ranging from 0 to 300 percent. In a later report, Nigg (Ref. 14) reported the penetration of pesticides through Tyvek, a fabric designed to have low penetration, to range from 0 to 23 percent.

The penetration values which exceed 100 percent suggest, in effect, that protective clothing in these instances has very little or no protective value. Penetration values larger than 100 percent are possible because of the method by which penetration is calculated; it is the ratio of the amount of pesticide found in external patches to the amount of pesticide found in patches within the applicator's protective clothing. Occasionally larger amounts of pesticide are found inside the clothing than outside, due to "wicking", the movement of pesticide through the material of the protective suit by capillary action, and to other indirect routes of internal deposition.

In sum, the available data on the impact of protective clothing show a wide range of penetration values. A few measurements of pesticide deposition are greater within the protective clothing than on the outside of the clothing, suggesting that the clothing had little or no protective value. Most data points, however, show considerable reduction in exposure, with the most common penetration of pesticide through clothing in the range of 5 to 10 percent. EPA does not believe that more sophisticated statistical analysis of the data—for instance, to determine mean, median, or 90th percentile levels—would be appropriate, given the limited nature of current data and the large degree of variability in the data points.

In light of the above, the Agency agrees, in a sense, with both the SAP and Rohm and Haas objections to the assumption that protective clothing will reduce dinocap exposure by 50 percent. For some individuals, exposure to covered areas of the body may not be halved by wearing protective clothing, but for many, exposure to these areas is likely to be reduced by considerably more than half. The Agency, however, continues to believe that the use of the 50 percent penetration value is appropriate in initially assessing the impact of wearing protective clothing.

There are not sufficient data available to identify a single statistically valid value for clothing penetration. While the clustering of data points in the range of 5 to 10 percent penetration is suggestive of what might be typical, there are enough excursions above that range to create a need to employ a safety factor. The 50 percent penetration figure was chosen because it incorporates an ample safety factor above the 5 to 10 percent penetration values typically seen in the surrogate data base and includes many of the outlying excursions representing higher penetrations as well. Furthermore, the 50 percent figure does not overstate the data, in that it does not represent an attempt to capture every excursion beyond 5 to 10 percent penetration. These examples of extremely high penetration values are interpreted as outliers which are not likely to be representative of typical experience.

As an additional step in its risk assessment, EPA determined whether, and to what extent the use of different penetration values would affect the Agency's regulatory decision for each use. This "sensitivity" analysis was based on the risk/benefit finding that for every use the costs of the proposed regulatory measures (the "benefits") were exceeded by the risks associated with continued unregulated use resulting in MOS's of less than 100. In essence, then, the MOS's above 100 were found to not cause unreasonable adverse effects and thus require no additional regulation, while MOS's less than 100 were found to cause unreasonable adverse effects and thus require additional regulation. The questions posed by the sensitivity analysis were, does the use of different clothing penetration assumptions move the MOS above or below 100, and what is the range of penetration assumptions which will not cause the MOS to move above or below the 100 threshold?

For all formulations for peaches and apricots and liquids used in greenhouses any clothing penetration assumptions

from 0 to 100 percent would give MOS's greater than 100. Thus, the use of any clothing penetration assumption has no effect on the Agency's regulatory position. For wettable powder formulations for grapes and field cucurbits, the clothing penetration would have to be 0 percent in order for the Agency not to propose regulatory changes. Because it is highly unlikely that protective clothing affords 100 percent protection, the use of any prudent protective clothing assumptions has little effect on the Agency's regulatory position.

For wettable powder formulations for pears and liquid formulations for grapes and field cucurbits, any clothing penetration assumption from 10 to 100 percent protection would have resulted in MOS's below 100. The frequency of excursions above 10 percent penetration make an assumption of 10 percent or less penetration imprudent; thus, the use of any prudent protective clothing assumptions for these uses would have little effect on the Agency's regulatory position. For the wettable powder formulation for use on apples, by far the most used formulation, any penetration value from 100 to 30 percent would result in a MOS less than 100. Again, the frequency of excursions above 30 percent penetration make a 70 percent protection assumption imprudent. Thus, the use of any prudent protective clothing assumptions for these uses would not affect the Agency's regulatory position.

For liquid formulations on apples, any penetration value less than 50 percent would result in a MOS greater than 100. Thus, the protective clothing assumption could affect the Agency's regulatory position. For pears, at the reduced application rate required in the Final Determination, any value from 60 to 0 percent penetration would result in a MOS greater than 100. Although there are instances of excursions above 60 percent, these incidents are likely to be unusual. Although a different clothing protection assumption could affect the Agency's regulatory position for this use, such an assumption would not likely represent a typical use situation.

For wettable powder formulations used on field roses, any value from 70 to 0 percent penetration would result in a MOS greater than 100. The propriety and impact of using different clothing penetration assumptions for this use would be similar to those described for pears above. Finally, for liquid formulations for field roses any value from 0 to 90 percent penetration would result in a MOS greater than 100. Because clothing penetration values

greater than 90 percent are considered very unusual, the use of any reasonable clothing protection value would have no effect on the Agency's regulatory position.

For all the uses for which the Agency is requiring the use of enclosed cabs to increase MOS's to acceptable levels, the Agency would have had to assume a protective value for areas of the body covered by protective clothing of almost 100 percent, in order not to impose this requirement.

In conclusion, the 50 percent penetration value used by the Agency in its risk assessment reflects a number of scientific and policy judgments. The surrogate data base provides some scientific guidance for the choice of an appropriate clothing protection factor. However, policy considerations also contribute significantly to the decision. Public health policy concerns require that a safety factor be employed when, as here, the data do not provide a precise answer. Economic concerns also require that the choice of a safety factor not represent an unrealistic and over-protective choice. For these reasons, the Agency believes that the 50 percent penetration value represents an appropriate choice.

3. *Other comments on exposure and risk assessment.* Rohm and Haas commented that the Agency has used different penetration values at different times, citing the Alachlor Position Document 1 (80 percent) and the Dinocap Technical Support Document in its assessment of exposure from home and garden application of dinocap (90 percent).

The Agency notes that the alachlor document estimated the reduction in exposure by going from no clothing to protective clothing and gloves. However, in retrospect, the Agency agrees that it was inconsistent to use 90 percent reduction for home and garden situations involving dinocap; the value was based on a Kurtz and Bode study (Ref. 11), submitted by Rohm and Haas. The Agency believes that the penetration value established for agricultural uses (50 percent) is also appropriate for home and garden applications. The increased estimated exposure values do not significantly affect the margin of safety calculations for home and garden use.

Rohm and Haas also commented that the Preliminary Determination was incorrect in stating that dinocap labels

are ambiguous or silent on requiring applicators to wear gloves. The labels clearly require the applicator to use protective gloves or an enclosed cab.

The Agency agrees that all dinocap labels clearly require that applicators use protective gloves, and has assumed that gloves are worn in its calculations of applicator exposure for the Final Determination.

Rohm and Haas questioned the time and acreage estimates for grapes and field roses used in the exposure assessment. They proposed that the acreage that can be treated in a normal day be calculated by assuming a treatment rate of 4.9 acres/hour over a 6-hour treatment day. This would result in a maximum treated area of 30 acres per day. This calculation method, which assumes a smaller treatment area per day, would reduce mixer/loader and applicator exposure, because the Agency assumes that exposure is based on total amount of pesticide handled per day, which in turn is based on acreage treated per day.

The Agency does not accept this approach to calculating acreage treated. The Agency's estimates of treatment areas per day are based on contacts with growers, agricultural extension experts, and university personnel. According to these sources, growers will work as long as 18 hours to complete spray operations, and so a 12-hour spray period, as assumed in the Preliminary Determination, does not appear unreasonable.

Rohm and Haas commented that the 1.5 lb. a.i./acre application rate on pears was unrealistically high, and should be reduced to 0.47 lbs. a.i./acre.

The Agency notes that 1.5 lb. a.i./acre application rate on pears is the maximum label rate for the liquid concentrate formulation (Ref. 17). The label states the application rate for pears to be 20 to 48 oz/acre of the 4 lb. a.i./gal formulation; this is equal to 0.625 to 1.5 lb. a.i./acre. The label rate suggested for the wettable powder is 0.5 lbs. of a 19.5 percent a.i. formulation per 100 gallons of water, 600 to 800 gallons to be used per acre. This is equal to 0.58 to 0.78 lbs. a.i./acre. However, based on Rohm and Haas' comment, the Agency will reduce the maximum application rate for liquid formulations of dinocap for use on pears to 0.47 lbs. a.i./acre.

4. *Conclusions on exposure and risk assessment.* The Agency has adjusted its final exposure/risk calculations

based on the comments received and discussed in Units II.B.2. and 3. (50 percent penetration value for protective clothing worn by home and garden applicators, gloves assumed to be worn by applicators, and reduced application rate for pears) as well as on information discussed below that was received after the Preliminary Determination was issued. Specifically, the Agency determined that apparent procedural deficiencies in the monkey dermal penetration study (Ref. 24) may render it invalid, and therefore no conclusions on dermal absorption can be based on this study at this time. The Agency also learned that the rabbit pharmacokinetic study (Ref. 6) involved only one isomer of dinocap and that isomer has been shown not to be developmentally toxic in a study conducted by the Agency (Ref. 21). The material tested for dermal absorption is not the material that is developmentally toxic and the resulting absorption value of 5.1 percent used in the Preliminary Determination can no longer be used in calculating margins of safety for dinocap. Thus, in the final calculations of dinocap margins of safety the Agency divided the NOEL, 50 mg/kg/day, by the estimated applicator exposure in mg/kg/day, without making a species-specific adjustment for dermal penetration. This procedure has the effect of assuming an equivalent dermal absorption of dinocap for humans and rabbits, independent of any specific estimate of the rate of such absorption. The effect on the calculated margins of safety in the Final Determination, compared to the Preliminary Determination, is to increase margins of safety by a factor of three, since the previous adjustment including a three-fold greater adsorption by monkeys (15.7 percent) compared to rabbits (5.1 percent).

The following table, Table 3, shows (1) estimated exposures and margins of safety resulting from use of label required protective clothing, (2) estimated exposures and margins of safety resulting from use of protective clothing required in the Final Determination, and (3) estimated exposures and margins of safety resulting from use of protective clothing and enclosed cabs required in the Final Determination.

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Table 3--EXPOSURES (MG/KG/DAY) AND MARGINS OF SAFETY USED IN THE FINAL DETERMINATION ON DINOCAP

Crop/ Formulation	Current Label		Current Label With Protective Clothing Required in the Final Determination		Current Label With Protective Clothing Required in the Final Determination and Enclosed Cabs	
	Estimated Exposure	MOS's	Estimated Reduced Exposure	MOS's	Estimated Reduced Exposure	MOS's
Peaches/Apricots						
Liquid	0.11-0.16	455-313	-----	-----	-----	-----
Wettable Powder	0.14-0.21	357-238	-----	-----	-----	-----
Pears						
Liquid	0.50-1.2	100-42	-----	-----	-----	-----
Liquid, Reduced Rate		300-126	-----	-----	-----	-----
Wettable Powder	0.66-1.6	76-31	0.28-0.69	179-72	0.20-0.48	250-104
Apples						
Liquid	0.40-0.50	125-100	-----	-----	-----	-----
Wettable Powder	0.53-0.66	94-76	0.23-0.28	217-179	-----	-----
Grapes						
Liquid	0.66-1.7	94-29	0.25-0.66	200-76	0.14-0.36	357-139
Wettable Powder	0.88-2.3	57-22	0.38-0.99	132-51	0.27-0.69	185-72
Field Cucurbits						
Liquid	0.084-1.9	595-26	0.075-0.68	667-74	0.052-0.12	962-417
Wettable Powder	0.028-2.1	1785-24	0.20-0.80	250-63	0.17-0.25	294-200
Field Roses						
Liquid	0.21-0.26	238-192	-----	-----	-----	-----
Wettable Powder	0.27-0.35	185-143	-----	-----	-----	-----
Greenhouse						
Liquid	0.16-0.25	313-200	-----	-----	-----	-----
Home Garden						
Liquid	.0056-.0222	8829-2252	-----	-----	-----	-----
(Revised)	.0061-.028	8197-1786	-----	-----	-----	-----
Dust	.0016-.0084	31250-5925	-----	-----	-----	-----
(Revised)	.0021-.0097	23810-5155	-----	-----	-----	-----
Home Turf						
Liquid	.016	3130	-----	-----	-----	-----
(Revised)	.017-.020	2941-2500	-----	-----	-----	-----

C. Benefits Assessment and Evaluation of Comments

1. *Summary of benefits assessment in the Preliminary Determination.* In the Preliminary Determination, the Agency assessed at length the benefits of the continued use of dinocap on a major site, apples, and a minor site, ornamentals. Use on ornamentals was selected because of concern about the possibility of high exposure to home gardeners. The Agency has solicited comment from registrants and user groups on the economic importance of dinocap for the remaining uses (pears, grapes, field cucurbits, greenhouse uses, peaches and apricots, and home lawn and garden) but has received no further information. Therefore, the remaining sites were not reviewed. The Agency believes dinocap is much less important to these sites, based on the small percentage of dinocap used on those sites and the small percentage of those sites to which dinocap is applied. This section summarizes the Preliminary Determination's assessment of the benefits of the apple and ornamental uses of dinocap; these benefits are discussed at greater length on pp. III 1-14 of the Technical Support Document.

About 30 percent of the U.S. apple acreage is treated with dinocap, mostly in the East and North Central regions. Dinocap is usually applied to apple foliage as a spray. The principal application method is by airblast sprayer. The target pest is powdery mildew, but dinocap also provides some control of mites. Although there are other fungicides registered to control powdery mildew, resistance by the powdery mildew fungus has been reported for some of them; no dinocap resistance either by powdery mildew or mites has been reported. The alternatives to dinocap are described at length on pp. IV 4-6 of the Technical Support Document.

If dinocap registrations were canceled for use on apples, the Agency estimated total short term cost increases of \$3.9 million per year, ranging from \$1.2 to \$6.7 million per year. These increases would be regionally distributed: Northwest, \$25,000; North Central, \$883,000; and East, \$3 million.

Based on recent production budgets (Ref. 19), the average total variable production cost per affected acre would increase less than 1 percent in the Northwest, and 5 percent or less in the North Central and East regions. Costs per affected acre would increase \$6.37 in the Northwest, \$5.25 in the North Central, and \$8.76 in the East. Based on these estimates, on the average number of acres per farm by region, and on the

regional variation in number of dinocap treatments, the total cost increase per year to a typical affected grower would be \$170 to \$690 in the Northwest, \$530 to \$1310 in the North Central, and \$1030 to \$2310 in the East.

The unavailability of dinocap would not be expected to affect the quantity or quality of apples available to the consumer, but there might be a slight increase in short term retail prices because of increases in production costs. Dinocap is used only to a very limited extent for powdery mildew control in ornamental plants. For both home and garden and commercial ornamental use, dinocap has a negligible market share. There are numerous alternative pesticides which provide equal or better control. There might be an increase in treatment costs if dinocap registrations were canceled for this use.

2. *Comments on the benefits assessment.* There was only one comment on the benefits of the use of dinocap. Rohm and Haas commented that the Agency's estimate of the volume of use of dinocap, 500,000 pounds a year, was overstated by a factor of 5.

The Agency's estimates were based on general survey data, which are inexact for relatively small-volume pesticides such as dinocap. The Agency has accepted Rohm and Haas' estimation of the volume of use of dinocap, and will use a 100,000 pound annual usage figure instead.

3. *Conclusions on benefits assessment.* Rohm and Haas did not question the Agency's per-acre estimates of the benefits of dinocap usage, and therefore the Agency has lowered its estimate of benefits by a factor of five to reflect the reduced usage estimates. The Agency does not believe that this reduction in overall benefits will occur disproportionately from one region to another, so benefits have been uniformly lowered for each region. The short term cost increase for the U.S. apple production is now estimated as \$.78 million (range of \$.24 to \$1.3 million) per year. This impact was regionally distributed as follows: Northwest—\$5,000; North Central—\$176,600; and East (where dinocap use is concentrated) \$600,000. The Agency has also recalculated the percentage of acreage treated with dinocap based on revised agricultural census data and data usage provided by the registrant; this recalculation lowered the Agency's estimate of the number of applicators exposed to dinocap (Ref. 18) to 11,650 before adjustments were made for the reduced usage noted by Rohm and Haas in their comments. A five-fold reduction in the number of applicators based on

reduced usage gives an estimate of 2,330 applicators. Assuming, as was done in Preliminary Determination, that 5 percent of dinocap applicators are women, the number of women applicators that might be at risk is now estimated to be 117.

III. Comments of the Scientific Advisory Panel, Secretary of Agriculture and Rohm and Haas

As required under sections 6 and 25 of FIFRA, the Agency provided its Preliminary Determination to the Scientific Advisory Panel (SAP) and the Secretary of Agriculture for their comments. Unit III also includes general comments from Rohm and Haas. Most of the comments submitted by the SAP and Rohm and Haas were addressed in Unit II, Risk and Benefit Assessment.

A. Comments of the Scientific Advisory Panel

Comments of the Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel

A Set of Scientific Issues Being Considered by the Agency in Connection with the Special Review of Dinocap.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (SAP) has completed review of the data base supporting the Environmental Protection Agency's (EPA) preliminary decision to cancel most of the registrations of dinocap unless certain modifications to the terms and conditions of registration are made by the registrants. The review was conducted in an open meeting held in Arlington, Virginia, on November 20, 1986. All Panel members, except Dr. Harold L. Bergman and Dr. John J. Lech, were present for the review. In addition, Dr. Bernard Schwetz, Chief of the Systemic Toxicology Branch of the Toxicology Research and Testing Program, National Institute of Environmental Health Sciences, served as an *ad hoc* member of the Panel.

Public notice of the meeting was published in the Federal Register on Friday, October 24, 1986.

Oral statements were received from staff of EPA and from Dr. David R. Streelman of Rohm and Haas Company.

In consideration of all matters brought out during the meeting and careful review of all documents presented by the Agency, the Panel unanimously submits the following report.

*Report of Panel Recommendations**Dinocap*

The Agency requested the Panel to focus its attention upon a set of scientific issues relating to the Special Review of dinocap. There follows a list of the issues and the Panel's response to each issue:

1. *The weight-of-evidence supports the conclusion that dinocap is a developmental toxicant.*

Panel Response: The Panel agrees that the weight-of-evidence supports the conclusion that dinocap is a developmental toxicant in laboratory animals, specifically in rabbits, by the oral route.

2. *The dermal exposure to dinocap can be estimated using available data.*

Panel Response: The Panel is disappointed with the apparent quality of the data relating to human exposure to dinocap. The Panel is not convinced that the 50 percent exposure level is appropriate for workers wearing protective clothing. The data appear to show that the applicator is at greatest risk. More attention to the applicator's use of protective clothing and/or restriction to certified applicators may be required.

Regarding the exposure assessment, the Panel believes that the plasma/urinary/tissue levels of metabolites should be used as an index of human exposure, rather than concentration on skin surface.

3. *That margins of safety were appropriately estimated using available developmental toxicity data, dermal absorption estimates and applicator exposure.*

Panel Response: The Panel is not certain that the human exposure estimates are suitable. The dermal teratology studies may not permit the determination of a margin of safety. The small group sizes, the lack of estimation of dose, and limitation of teratology studies to one species, limit the certainty of the calculated margin of safety. These data are inconclusive, in the Panel's opinion, and this situation prevents the use of these data to establish a confident no-observed effects level and margin of safety.

There are several possibilities for improving the data set: obtain teratology studies in another species, first by the oral route.

Alternatively or additionally, do dermal teratology studies when absorbed dose has reached a steady state, so that dose can be determined accurately or, where appropriate, use urinary metabolites to quantify the dose that gets metabolized. Parallel human

dosimetry vs. urinary metabolites could be conducted.

It should be noted that the Panel is concerned that the dermal absorption estimates in humans reflect only the concentration of dinocap at the skin surface and not the dose delivered to potential target tissues. As noted previously, the Panel wishes to express the need to determine human exposure on the basis of metabolite levels in plasma/urine/tissue, etc.

For the Chairman:

Certified as an accurate report of Findings: Stephen L. Johnson, Executive Secretary, FIFRA Scientific Advisory Panel, Date: November 25, 1986.

The Agency's response to the issues raised by the Panel are found in Unit II of this document. In brief, the Panel expressed concern about the confidence level in margins of safety calculated from the rabbit dermal teratology study. The Panel's focus of concern appears to be lack of supporting urinary, plasma and tissue data to derive an internal absorbed dose. In the Preliminary Determination, the Agency did estimate internal dose by utilizing rabbit and monkey pharmacokinetic studies. However, subsequent to the issuance of the Preliminary Determination, the Agency discovered that the rabbit data was not conducted on the developmentally toxic component of dinocap and that the monkey study was invalid. The Agency is no longer using these studies and has calculated margins of safety in the Final Determination by dividing the NOEL determined from the rabbit dermal teratology study (50 mg/kg/day) by the estimated applicator exposure expressed in mg/kg/day. The Agency believes that the 50 mg/kg/day NOEL is still appropriate notwithstanding the concerns raised by the Panel.

B. Comments of the Secretary of Agriculture

The comments of the Secretary of Agriculture to the Preliminary Determination and draft Notice of Intent to Cancel are printed in full below:

December 17, 1986

Mr. Douglas Campt,

Director, Office of Pesticide Programs (TS-766C), U.S. Environmental Protection Agency, Washington, DC 20460.

Dear Mr. Campt: This is in response to your letter of November 7 forwarding a draft notice of intent to cancel registrations of the pesticide chemical dinocap unless the registrant makes certain modifications to the registration.

The Department does not have any basic objection to the proposed action, however we question the practicality of requiring enclosed cab tractors in eastern orchards. Further,

there may be technical problems associated with certain formulations as it relates to water soluble packaging.

Sincerely,

Charles L. Smith,

Coordinator, Pesticides & Pesticide Assessment.

In response to the comment on enclosed cabs, the Agency contacted Dr. Kenneth Hickey, Plant Pathologist, at the Pennsylvania University Fruit Research Laboratory for further information (Refs. 8 and 9). Dr. Hickey indicated that, other than the expense of converting current equipment or purchasing enclosed cab tractors, the system is practical and desirable; he noted that some growers already use enclosed cab tractors.

Generally, expert opinion holds that enclosed cab tractors are already in use, and therefore the Agency considers them as a practical regulatory option to reduce exposure to dinocap. However, for those smaller scale growers who do not already have enclosed cab tractors, purchasing one could be a major expense. It is not known how many eastern growers already have closed cab tractors; however, the Agency believes that for those growers who have pickup trucks which could be fitted to pull airblast sprayers the costs would not represent a major expense.

In addition to the comment by the Secretary on water soluble packaging, Rohm and Haas submitted data showing that water soluble packaging is not practical for the Dikar® formulation of dinocap, since the mancozeb component embrittles the packaging material. This embrittlement and the subsequent rupturing of containers of Dikar® which could be expected to occur, would occasionally result in very high exposures to dinocap from accidents and from clean-up operations. The Agency accepts this comment and will withdraw its proposal to require water soluble packaging for the Dikar® formulation.

IV. Final Determination

In the Preliminary Determination, the Agency proposed several modifications to the terms and conditions of registration of dinocap products. The Agency's proposals were based on its determination that the uses of dinocap as currently registered posed unreasonable adverse effects to applicators and mixer/loaders and the changes in the terms and conditions of registration were necessary to ensure that the benefits of use outweighed the risks of use.

The requirements specified in the Preliminary Determination were listed in

Unit I of this document and are discussed in detail in the Technical Support Document. Based on an evaluation of the comments received in response to the Preliminary Determination as well as additional information received subsequent to its issuance, the Agency has determined that the uses of dinocap continue to pose unreasonable risks to human health. Therefore, in order for the benefits of use to outweigh the risks of use, and to avoid cancellation, registrations of dinocap products must be modified to meet the terms and conditions specified in Unit IV. A. and B. of this document.

A. Product Label Requirements

Based on margins of safety calculated in the Final Determination, several uses of dinocap will require no label changes except the change specified in Unit IV. A.1. below. Those uses that do not require any label changes except the change specified in Unit IV. A.1. include:

(1) Liquid and wettable powder formulations used on peaches/apricots, and field roses.

(2) Liquid formulations used on pears, apples, and in greenhouses.

(3) All home and garden uses.

1. All products must bear a developmental toxicity warning statement as follows:

Use of this product may be hazardous to your health. This product has been determined to cause birth defects in laboratory animals.

2. All liquid formulation products that bear uses for pears must limit the maximum application rate to 0.47 lbs./acre.

3. All wettable powder formulation products that bear uses for apples must bear the following label statement for use on apples:

During the mixing and loading of concentrated dinocap, wear a protective suit of one or two pieces that covers all parts of the body except the head, hands, and feet. Wear chemical-resistant gloves, chemical-resistant apron, and chemical-resistant shoes, shoe coverings, or boots. Wear goggles or a face shield. A hood or hat may also be worn.

Whenever possible it is recommended that application be made from a vehicle with a completely enclosed cab. All vents and windows of the cab should remain closed during application. During application from a vehicle with a completely enclosed cab, wear a long-sleeve shirt and long pants. A clean set of protective clothing and equipment as defined here must be available in case you must exit the cab in treated areas for repairs or other reasons. Always wear protective gloves upon exiting the cab. Remove protective clothing and

equipment before reentering the cab to prevent cab contamination.

If application from a vehicle with a completely enclosed cab is not possible and during repair and cleanup of equipment or reentry into treated areas prior to drying of the spray, wear a protective suit of one or two pieces that covers all parts of the body except the hands, feet, and head. Wear chemical-resistant gloves and chemical-resistant shoes, shoe coverings or boots. A hood or hat may also be worn. During airblast or mist blower application a protective hood or wide brim hat must be worn.

Warning: Wearing the protective suit for the prolonged periods required for application may produce heat stress at temperatures above 85 °F on a cloudy day or 80 °F on a sunny day. Application of this product must be conducted from enclosed cab vehicles when the temperature exceeds 85 °F (80 °F on sunny days) or delayed until the temperature drops. After application of the pesticide is completed, remove all clothes and shoes. Shower using soap and water. Redress only in clean clothes. Do not use contaminated clothing. Wash non-disposable protective clothing and protective equipment with soap or detergent and water after each use. Personal and non-disposable protective clothing worn during use must be laundered separately from household articles. Clothing or protective equipment heavily contaminated or drenched with dinocap must be destroyed according to state or local regulations. Heavily contaminated or drenched clothing cannot be adequately decontaminated.

4. All liquid and wettable powder formulations that bear uses for grapes and field cucurbits and all wettable powder formulations that bear uses for pears must bear the following label statement for use on these commodities:

During the mixing and loading of concentrated dinocap, wear the following protective clothing and equipment: Wear a protective suit of one or two pieces that covers all parts of the body except the head, hands, and feet. Wear chemical-resistant gloves, chemical-resistant apron, and chemical-resistant shoes, shoe coverings, or boots. Wear goggles or a face shield. A hood or hat may also be worn.

This product must be applied from a vehicle with an enclosed cab. All vents and windows of the cab should remain closed during the application. During application, wear a long-sleeve shirt and long pants. A clean set of protective clothing and equipment as defined below must be available in case you must exit the cab in treated areas for repairs or other reasons. Always wear protective gloves upon exiting the cab. Remove protective equipment before

reentering the cab to prevent cab contamination.

Wear the following protective clothing during equipment repair, equipment cleaning, and during reentry to treated areas before spray has dried: A protective suit of one or two pieces that covers all parts of the body except the hands, feet, and head, chemical-resistant gloves and chemical-resistant shoes, shoe coverings or boots. A hood or hat may also be worn.

After application of the pesticide is completed, remove all clothes and shoes. Shower using soap and water. Redress only in clean clothes. Do not use contaminated clothing. Wash non-disposable protective clothing and protective equipment with soap or detergent and water after each use. Personal and non-disposable protective clothing worn during use must be laundered separately from household articles. Clothing or protective equipment heavily contaminated or drenched with dinocap must be destroyed according to state or local regulations. Heavily contaminated or drenched clothing cannot be adequately decontaminated.

B. Basis for Modification to Terms and Conditions of Registration

1. *Developmental toxicity warning statement on all labels.* The Agency believes this statement is necessary for all products to ensure that applicators and mixer/loaders as well as home and garden users are aware that this product is a developmental toxicant in test animals and that users will therefore be more likely to follow use directions carefully and wear required protective clothing. Imposition of this label requirement will not increase costs to growers and therefore will not diminish the benefits of use of this chemical.

2. *Reduced label rate for pears.* Based on information submitted by the registrant that 0.47 lbs./acre is the maximum rate used in actual practice the Agency is requiring that label rates reflect this lower use rate. Without a reduction in the label rate, applicators would have to wear the same protective clothing required for wettable powder formulations used on apples in order to achieve an acceptable margin of safety. Imposition of the reduced application rate will not impact on growers and consequently will not diminish the benefits of use of this chemical.

3. *Protective clothing requirement for wettable powder formulations for use on apples.* In order to achieve acceptable margins of safety, the Agency is requiring that applicators and mixer/loaders wear the specified protective clothing and apply dinocap from an enclosed cab when weather conditions

make it impractical to wear all the required clothing. Acquiring the protective clothing required by this Notice should result in only minor costs to growers since the additional protective clothing is already required for mixer/loaders and most growers perform both mixing/loading and application. Therefore, the minimal cost increases that may be incurred for protective clothing does not appreciably alter the benefits of use of wettable powder formulations of dinocap on apples.

4. *Protective clothing and enclosed cab requirement for liquid and wettable powder formulations for grapes and field cucurbits and all wettable powder formulations for pears.* In order to achieve acceptable margins of safety, the Agency is requiring that applicators and mixer/loaders wear the specified protective clothing and apply dinocap from an enclosed cab. Some growers already have tractors with enclosed cabs. For those growers who do not have such tractors, a pickup truck, available in most farm operations, can be used to pull spray equipment in many application situations. Some small scale growers might face an expense of several thousand dollars in purchasing a tractor with an enclosed cab or a pickup truck, or retrofitting a tractor with an enclosed cab. The Agency believes the additional costs of acquiring enclosed cab equipment, minimal in most cases, will not significantly diminish the benefits of dinocap for these uses.

5. *Summary.* The Agency has concluded that if the modifications to the terms and conditions of registration of dinocap products as specified in this Notice are made, the benefits of use outweigh the risks of continued use. The Agency is not imposing the restricted use classification, nor is it requiring the use of closed mixing systems, both measures proposed in the Preliminary Determination, because if the modifications to the terms and conditions of registration of dinocap as specified in this Notice are made, the benefits of use outweigh the risks of continued use, and such further measures are unnecessary.

C. Existing Stocks Provisions

Pursuant to FIFRA section 6(a)(1), "the Administrator may permit the continued sale and use of existing stocks of a pesticide whose registration [is cancelled pursuant to this Notice] to such extent, under such conditions, and for such uses as he may specify, if he determines that such sale or use is not inconsistent with the purposes of [FIFRA] and will not have unreasonable adverse effects on the environment." For purposes of this Notice, "existing stocks" are defined as any quantity of dinocap products subject to this Notice

that has been formulated, packaged and labeled for use and is being held for shipment or release or has been shipped and released into commerce prior to the date by which the registration of the product is cancelled pursuant to this Notice.

The Agency has determined that, for cancelled dinocap products, i.e., those products for which the registrant did not make the label changes required by this Notice, no further shipment, distribution, or sale of existing stocks will be permitted after 6 months from the publication date of this Notice unless such products are stickered with the labeling required by this Notice. Registrants may petition the Agency to allow the sale and distribution of unstickered existing stocks. Such a petition should be accompanied by risk and benefit data which the registrant believes would allow the Agency to determine that the benefits of use exceed the risk for the duration of use of such stocks. The Agency is allowing 6 months from the date of this Notice before requiring cancelled products to be stickered in order to have an enforcement policy consistent with the provisions provided for products for which the registrant is making the label changes required by this Notice. In the event that all dinocap products subject to this Notice are cancelled pursuant to this Notice, the Agency will not allow the sale and distribution of any existing stocks of these cancelled products from the date of cancellation unless such products are stickered with the label provisions required by this Notice.

Dinocap products for which registrants are making the label changes required by this Notice may not be released for shipment, distributed or sold by a registrant 6 months from the publication date of this Notice unless such product bears an amended label. Such dinocap products may not be distributed or sold by anyone else 6 months after the publication date of this Notice unless such product bears the amended label or is stickered with the amended label.

V. Procedural Matters

This Notice announces the Agency's determination to cancel all registrations of products containing dinocap and deny registration to all applications to register products containing dinocap unless certain modifications are made to the terms and conditions of registration. This Unit explains how registrants may apply to amend their registrations for dinocap products to comply with the terms and conditions discussed in Unit IV.A. of this document. Under sections 6(b)(1) and 3(c)(6) of FIFRA, applicants, registrants, and certain other adversely affected parties may request a hearing on the cancellation and denial actions

that this Notice initiates. Unless a hearing is properly requested with regard to a particular registration or application, the registration will be cancelled or the application denied. This unit of the Notice explains how such persons may request a hearing in accordance with the procedures specified in this Notice and the consequences of requesting or failing to request a hearing.

1. *Procedure for amending the terms and conditions of registration to avoid cancellation or denial of application.* Registrants affected by the cancellation actions set forth in this Notice may avoid cancellation by filing an application for an amended registration which contains the label modifications detailed in Unit IV.C. of this Notice. This application must be filed within 30 days of receipt of this Notice or within 30 days from the publication of this Notice, whichever occurs later. Applicants for a registration subject to this Notice must file an amended registration application within the applicable 30-day period to avoid denial of their pending application. Applications must be submitted to: Dennis Edwards, Product Manager 12, Registration Division (TS-767C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St. SW, Washington, DC 20460, (703-557-2386).

2. *Procedure for requesting a hearing.* To contest the regulatory actions initiated by this Notice, registrants, and any applicant whose applications for registration has been denied, may request a hearing within 30 days of receipt of this Notice, or within 30 days from the publication of this Notice in the **Federal Register**, whichever occurs later. Any other persons adversely affected by the cancellation action described in this Notice, or any interested person with the concurrence of an applicant whose application for registration has been denied, may request a hearing within 30 days of publication of this Notice in the **Federal Register**. All registrants, applicants, and other adversely affected persons who request a hearing must file the request in accordance with the procedures established by FIFRA and the Agency's Rules of Practice Governing Hearings (40 CFR Part 164). These procedures require that all requests must identify the specific registration(s) by Registration Number(s) and the specific use(s) for which a hearing is requested, and must be received by the Hearing Clerk within the applicable 30-day period. Failure to comply with these requirements will result in denial of the request for a hearing. Requests for a hearing should also be accompanied by objections that are specific for each use of the pesticide product for which a hearing is

requested. Requests for a hearing must be submitted to: Hearing Clerk (A-110), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460.

a. *Consequences of filing a timely and effective hearing request.* If a hearing on any action initiated by this Notice is requested in a timely and effective manner, the hearing will be governed by the Agency's Rules of Practice for Hearings under FIFRA section 6 (40 CFR Part 164). In the event of a hearing, each cancellation action concerning the specific uses or uses of the specific registered product which is the subject of the hearing will not become effective except pursuant to an order of the Administrator at the conclusion of the hearing. Similarly, in the event of a hearing, each denial of registration which is a subject of the hearing will not become effective prior to the final order of the Administrator at the conclusion of the hearing. The hearing will be limited to the specific registrations or applications for which the hearing is requested.

b. *Consequences of failure to file in a timely and effective manner.* If a hearing concerning the cancellation or denial of registration of a specific dinocap pesticide product subject to this Notice is not requested by the end of the applicable 30 day period, registration of that product will be cancelled, or the denial will be effective.

3. *Separation of Functions.* The Agency's rules of practice forbid anyone who may take part in deciding this case, at any stage of the proceeding from discussing the merits of the proceeding *ex parte* with any party or with any person who has been connected with the preparation or presentation of the proceeding as an advocate or in any investigative or expert capacity, or with any of their representatives (40 CFR 164.7). Accordingly, the following Agency offices, and the staffs thereof, are designated as the judicial staff of the Agency in any administrative hearing on this Notice of Intent to Cancel: The Office of the Administrative Law Judge, the Office of the Judicial Officer, the Deputy Administrator and the members of the staff in the immediate office of the Deputy Administrator, the Administrator, and the members of the staff in the immediate office of the Administrator. None of the persons designated as the judicial staff may have any *ex parte* communication with the trial staff or any other interested person not employed by EPA, on the merits of any of the applicable regulations.

VI. Public Docket

Pursuant to 40 CFR 154.15, EPA has established a public docket for the Dinocap Special Review. The public

docket includes (1) this Notice; (2) any other notices pertinent to the Dinocap Special Review; (3) non-CBI documents and copies of written comments or other materials submitted to EPA in response to this Notice, and any other Notice regarding dinocap submitted at any time during the Special Review process; (4) memoranda describing each meeting held during the Special Review process between EPA personnel and any person outside government pertaining to the use of dinocap; and (5) a current index of materials in the dinocap public docket. The docket is available for public inspection from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays, in: Room 236, Crystal Mall #2, 1921 Jefferson Davis Highway, Arlington, VA.

VII. References

The references used in this Notice are listed below:

- (1) Costlow, R.D., and W.W. Kane. (1984b). Teratology study with Karathane® in Rabbits. Rohm and Haas Protocol 83P-302, Report No. 83R-113, March 30, 1984.
- (2) Costlow, R.D., and W.W. Kane. (1984a). Teratology study with Karathane® in Rabbits (amendment). Rohm and Haas Protocol 83P-060, Report No. 83R-022, December 7, 1984.
- (3) Costlow, R.D., and M.F. Lutz. (1985a). Range Finding Dermal Study with Karathane® Formulation in Rabbits. Rohm and Haas No. Report 84R-248, draft dated February 25, 1985.
- (4) Costlow, R.D., and M.F. Lutz. (1985b). Dermal Teratology Study with Karathane® Technical in Rabbits. Rohm and Haas Protocol 84P-478, Report 85R-16, draft dated February 25, 1985.
- (5) Davies, J.E., et al. (1982). Reduction of Pesticide Exposure with Protective Clothing for Applicators and Mixers. *Journal of Occupational Medicine* 24(6): 464-8.
- (6) DiDonato, L.J., and S.L. Longacre. (1985). Karathane® Pharmacokinetic Study in Female Rabbits. Rohm and Haas Protocol No. 84P-563, Report No. 85R-002, draft dated February 25, 1985.
- (7) Gray, L.E., et al. (1986). Prenatal Exposure to the Fungicide Dinocap Causes Behavioral Torticollis, Ballooning, and Cleft Palate in Mice, But Not Rats or Hamsters. *Teratogenesis, Carcinogenesis, and Mutagenesis* 6:33-43.
- (8) Hickey, K.D. (1986a). Fruit Research Lab., Pennsylvania State University, Biglerville, PA. Personal Communication to E.N. Pelletier, USEPA, Washington, DC. May 14, 1986.
- (9) Hickey, K.D. (1986b). Fruit Research Lab., Pennsylvania State University, Biglerville, PA. Personal Communication to J.L. Andersen, USEPA, Washington, DC. July 1, 1986.
- (10) Honeycutt, R.C. (1985). Field Worker Exposure: The Usefulness of Estimates Based on Generic Data in Dermal Exposure Related to Pesticide Use. *American Chemical Society Symposium Series* 273, pp. 369-75.
- (11) Kurtz, D.A., and W.M. Bode. (1985). Application Exposure to the Home Gardener in Dermal Exposure Related to Pesticide Use. *American Chemical Society Symposium Series* 273, pp. 134-161.
- (12) Maddy, K.T. and H.R. Fong. (1983). Monitoring Worker Exposure to Dinoseb. California Department of Food and Agriculture Report HS-1079, April 28, 1983.
- (13) Nigg, H. (1986). Dicofof Exposure to Florida Citrus Applicators: Effects of Protective Clothing. *Archives of Environmental Contamination and Toxicology* 15:121-134.
- (14) Nigg, H., et al. (1987). Pesticide Exposure to Florida Greenhouse Applicators. Draft Report under EPA Grant CR-810743, April 1987.
- (15) Offutt, C.K. (1985). Review of Reentry Data [on Dinocap]. Memorandum to Jay Ellenberger, Product Manager, Insecticide-Rodenticide Branch, RD, OPP, USEPA. Washington, DC. April 15, 1985.
- (16) Opinion Research Corporation (O.R.C.) (1985). An Evaluation of Monsanto's Grower Meetings Final Report, June 1985.
- (17) Pelletier, E.N. (1984). Report on Use Practice Data Relative to Daily Exposure to Dinocap. Memorandum to David Severn, Exposure Assessment Branch, HED, OPP, USEPA. Washington, DC. May 4, 1984.
- (18) Pelletier, E.N. (1988). Numbers of Application Workers Estimated to Be Exposed to Dinocap Usage. Memorandum to Paul Parsons, Special Review Branch, RD, OPP, USEPA. USEPA. Washington, DC. August 23, 1988.
- (19) Pelletier, E.N., J.L. Andersen, and J.E. Hogue. (1986). Benefits Summary for the Dinocap PD 2/3, USEPA, OPP, BUD, SSB. Washington, DC. July 14, 1986.
- (20) Rogers, J.M., et al. (1986). Teratogenic Effects of the Fungicide Dinocap in the Mouse. *Teratogenesis, Carcinogenesis, and Mutagenesis* 6:375-81.
- (21) Rogers, J.M., et al. (1987). Developmental Toxicity of Dinocap in the Mouse Is Not Due to Two Isomers of the Major Active Ingredient. *Teratogenesis, Carcinogenesis, and Mutagenesis* 7:341-6.
- (22) Skalko, R.G. and E.G. Johnson. (1986). Consensus Workshop on the Evaluation of Maternal and Developmental Toxicity Work Group I Report: End Points of Maternal and Developmental Toxicity. *Teratogenesis, Carcinogenesis, and Mutagenesis* 7:307-10.
- (23) Waldron, A.C. (1985). Minimizing Exposure Risk for the Mixer/Loader, Applicator, and Field Worker. *American Chemical Society Symposium Series* 273.
- (24) Webster, R.C. and H.I. Maibach. (1985). Karathane®: Percutaneous Absorption of 14C-Karathane (14C-DNHPC) in Rhesus Monkeys following Single Topical Application. Rohm and Haas Protocol 84P-480, Report No. 85RC-49, November 25, 1985.

All but the published references concerning this Final Determination on dinocap are available for inspection in Room 236, 1921 Jefferson Davis Highway, Arlington, Virginia, from 9 a.m. to 4 p.m. Monday through Friday, except legal holidays.

Dated: January 25, 1989.

John A. Moore,

Acting Administrator.

[FR Doc. 89-2656 Filed 2-3-89; 8:45 am]

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² No amendments to this volume were promulgated during the period Jan. 1, 1987 to Dec. 31, 1987. The CFR volume issued January 1, 1987, should be retained.

³ No amendments to this volume were promulgated during the period Apr. 1, 1980 to March 31, 1988. The CFR volume issued as of Apr. 1, 1980, should be retained.

⁴ The July 1, 1985 edition of 32 CFR Parts 1-189 contains a note only for Parts 1-39 inclusive. For the full text of the Defense Acquisition Regulations in Parts 1-39, consult the three CFR volumes issued as of July 1, 1984, containing those parts.

⁵ No amendments to this volume were promulgated during the period July 1, 1986 to June 30, 1988. The CFR volume issued as of July 1, 1986, should be retained.

⁶ The July 1, 1985 edition of 41 CFR Chapters 1-100 contains a note only for Chapters 1 to 49 inclusive. For the full text of procurement regulations in Chapters 1 to 49, consult the eleven CFR volumes issued as of July 1, 1984 containing those chapters.